Enabling change in family farm businesses

by
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B.Agr.Sc. (Hons)

Submitted in fulfillment of the requirements for the Degree of Doctor of Philosophy

University of Tasmania, October 2008

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15 October 2008

Statement of Co-Authorship

(for use where the PhD thesis comprises published materials which have coauthors)

UTAS

Statement of claimed contribution by PhD candidate

I declare that the following people (listed with their institution at the time of authorship if not UTAS) contributed in the following percentages to each publication submitted as part of this thesis:

Paper 1 **Fulton, A.** (95%), Champion, S. (5%)

Paper 2 **Fulton, A.** (65%), McGowan, C. (Catherine McGowan Consulting Pty Ltd) (35%)

Paper 3 **Fulton, A.** (95%), Clark, R. (5%)

Paper 4 **Fulton, A.** (90%), Weatherley, J (10%)

Paper 5 **Fulton, A.** (90%), Fulton, D. (5%), and five other authors (inc one from DPIWE and one from Rural Directions Pty Ltd) contributing a total of 5% together

Paper 6 Kilpatrick, S. (50%), **Fulton, A.** (45%), Geard, L. (5%)

Paper 7 Kilpatrick, S. (45%), **Fulton, A.** (45%), Johns, S. (5%), Weatherley, J. (5%)

Details of the role of each author:

An explanation of the role of each author is given in a preliminary statement prior to each paper contained in the thesis.

Signed: Date: 9 December 2008

Statement of endorsement of claim by Supervisor and Head of School:

Based on our communications with the contributing authors and our knowledge of the work undertaken by the candidate, we the undersigned agree with the above stated proportion of work undertaken for each of the above published (or submitted) peer-reviewed manuscripts contributing to this thesis:

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LETTER OF SUPPORT FROM PRIMARY SUPERVISOR

Consistent with the Graduate Research Procedures of the University of Tasmania, specifically Section 9.6(g), as the primary supervisor of Amabel Fulton since 2002, I provide this statement attesting to the contribution made by Amabel Fulton to the authorship of the various papers included in this work submitted for a PhD.

In consultation with me, Amabel Fulton has submitted a thesis based on publications prepared during her candidature as a PhD student at the University of Tasmania. Many of these publications involve coauthors. Each publication in the thesis is preceded by a cover page in which Amabel has described her contribution. To the best of my knowledge and belief, the statements made by Amabel about her contribution to each paper are fair and appropriate. I have sought to verify these statements by conferring with the coauthors of the various publications. I understand that all coauthors are happy about the statements made by Amabel.

As some of the publications are those where Sue Kilpatrick is first author, I have invited A/Prof Kilpatrick to provide a statement testifying as to her knowledge and acceptance of Amabel's use of those papers in this thesis. Her letter appears on the next page.

Comprising a set of publications developed over a decade, the thesis of Amabel Fulton shows a maturity of scholarship and thinking that is not typical of most students. At that same time, especially in her preface, Amabel has explained her personal journey from being an agricultural scientist to being a social scientist. As will be evident to those who read that preface, that journey was not without its difficulties, personal as well as intellectual. It has been my privilege to supervise Amabel, and to be involved in part of her journey. I commend this thesis to you.

Yours sincerely,

Prof Frank Vanclay
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23rd July 2008

LETTER OF SUPPORT FOR THESIS SUBMISSION, AMABEL FULTON

I am co-author and first named on two of the publications which Amabel Fulton has submitted has part of her PhD thesis. These are:
Paper 6: Kilpatrick, S., Fulton, A., and Geard, L. (2002) *Providing client focused education and training*. Report to Department of Agriculture, Fisheries and Forestry Australia. Launceston: Centre for Research and Learning in Regional Australia, University of Tasmania.
Paper 7: Kilpatrick, S., Fulton, A., Johns, S., and Weatherley, J. (2006) *A responsive training market: the role of brokers*. RIRDC Report Number: 06/110 for the Cooperative Venture for Capacity Building. Canberra: Rural Industries Research and Development Corporation.

The comments made by Amabel about her contribution to each of these papers are accurate, fair and appropriate and I endorse them.

I have observed Amabel's scholarship develop over the decade during which I have had the privilege of working with her to reach the very high level that is demonstrated in this thesis. Her journey has been characterised by deep reflection and application of her learning. As a result, I believe that Amabel has achieved a level of understanding that few doctoral students are able to achieve. I too commend this thesis to you.

Yours sincerely,

Associate Professor Sue Kilpatrick,
Director, University Department of Rural Health

Abstract

The central argument of the thesis is that as the dominant economic and social structure in advanced industrialized agriculture, the family farm business is central to enabling change in rural Australia. A deep understanding of the family farm business – its components and their interactions – is critical to designing mechanisms for enabling change in Australian agriculture. The process of enabling change needs to address the *needs* of the *right* people, at the *right* time. A service brokering model – which incorporates this approach – is proposed as an alternative to the current 'product-push' model of extension in Australia.

The thesis is presented as a series of selected research papers, published over several years, and which have a common proposition: that understanding the social dynamics of the family farm business is core to enabling change in Australian agriculture. In addition to a general introduction to enabling change in family farm businesses, the papers address the following topics:

- Identification of the characteristics of family farm businesses as the dominant structural unit in Australian agriculture (Paper 1)
- A review of the role and needs of women in family farm businesses in Australia (Paper 2)
- Research on the role of agribusiness in family farm decision making (Paper 3)
- An assessment of the barriers to farm diversification in regional Tasmania (Paper 4)
- A review of research on agricultural extension, learning and change (Paper 5)
- Identification of effective processes for ensuring the content of learning activities for family farm businesses is relevant to their changing needs (Paper 6)
- The case for meeting the needs of family farm businesses through training brokerage (Paper 7)

Across the papers, a conceptual framework to assist in the design of programmes aimed at enabling change in family farm businesses in Australia is presented. This model conceives family farm business behaviour as the outcome of the interactions between the family, the natural resources which are farmed, and the farm business, all within a broader social, economic and political context. The thesis presents an alternate extension model to the current 'product-push' model. The service broker concept addresses the provision of extension services in agriculture by focusing on the *needs* of family farm businesses. A case is made for agencies to act as 'brokers' between family farm businesses and the wide range of services available to address their needs. Such an approach, coordinated at a regional level, has the potential to deliver a major breakthrough in the rate of improvement in the sustainability of our family farm businesses, our rural industries and rural and regional Australia.

Acknowledgements

This thesis would not have come to fruition if it had not been for the dedication, determination and support of my husband and partner of 24 years, David. For the coaching, mentoring, professional and support for our child rearing efforts, I thank you from the bottom of my heart. I hope that the journey of this PhD – from its inception in our little cottage in Ulverstone, through all the trials and tribulations of a full and exciting life – has been worth the immense effort you have made in supporting me in bringing it to completion. It certainly has been for me.

To my supervisor and friend, Prof Frank Vanclay, I also extend by sincere thanks. Frank's persistence and commitment to achieving an outcome was such that I had no choice, but to deliver in the end. It was his intellectual input, his specialist knowledge of rural social research, and his experience in designing, implementing and writing up research projects that gave me the confidence to pick the project up again and push it over the line. And to Phil Brown, thank you for hanging in there.

To the farmers, extension providers and industry stakeholders, who shared their experiences, knowledge and perspectives with me and my research associates over time, a wonderful thank you. It was an honour and a privilege to learn from you, to spend time with you, and to be inspired by your determination, dedication, innovation and resourcefulness. Thank you for your assistance in my life-long learning pathway. I hope that you receive value from the way I have brought your ideas forward.

To Dr Rowland Lawrence, who encouraged me to move from agricultural science to rural sociology, and to Prof Rob Clark, who took on this risky project and student, thank you also. Rob's belief in the contribution that rural sociology could make to agricultural research was ahead of its time, and has put the Tasmanian Institute of Agricultural Research ahead of all its counterparts throughout Australia. This initiative has, and will continue to bring long-term benefits to our valuable rural industries and the communities within which they reside. Dr Tim Scrase, who was a sociologist at UTAS at the time, was a big help in helping me to understand social research methods.

To the research corporations and organizations who have invested in the rural social research presented in this thesis – Horticulture Australia; the Rural Industries Research and Development Corporation; Meat and Livestock Australia; Australian Wool Innovations; the CRC for Premium Quality Wool; the Tasmanian Department of Primary Industries and Water; the Department of Agriculture, Fisheries and Forestry, and the Cooperative Venture for Capacity Building – thank you.

Finally, I would like to thank all my family, friends and colleagues – especially Dad, Bech, Lies, Paul and Sue, Mum, Mary Jolly, Tom Lewis, Greg Holz, Jane Weatherley, Cathy McGowan, Scott Champion, Sue Kilpatrick, all the staff at RDS, and my gorgeous children Tom, Ben and Sarah – for sharing this PhD journey with me. Its completion is, I know, a great relief to all!

Contents

Preface: a story of life

As even the most superficial reading will reveal, this PhD has been more than a decade in the making. Over this period, its creation, development, hibernation, review, revival and renewal has been intertwined with a series of life events. In the same way as the needs and aspirations of the family farm business change with the changing circumstances of the family, so too has this thesis. This preface tells the journey of the thesis and its author over its course.

In my current professional role, I am a Director and Senior Consultant with Rural Development Services (RDS), an agrifood professional services firm which I established with my husband, Dr David Fulton, in 1999. The company was founded with a vision and a commitment to: *Enhancing human and organisational capacity in rural and regional Australia.* In order to achieve this vision, RDS provides industry development, applied industry R&D, rural social research, people development and sustainable business development. RDS has developed into a national operation, and in 2008 had 21 staff (representing 11.6 FTE) and had more than 25 major agribusiness clients and over 600 individual clients across Australia. Over the years, I played every role in the business, from book-keeping and filing, through to preparation of Board papers, client servicing, project management, facilitation and, for many years, I was its Chief Executive Officer.

In March 2006 I was diagnosed with breast cancer. This gave me an opportunity to reflect on my life, and I felt satisfied with what I had done, and where I was heading. While initially the future looked grim, progress through the complex treatment created hope for the future. The breast cancer experience then, was one of reflection but mostly one of having to undertake significant medical treatments which reduced my capacity, but not my passion, for work. Unfortunately, in June 2008, the cancer was diagnosed as having spread to other parts of my body, and I was given a terminal prognosis with only a few short years to live. After recovering from the shock of this verdict, I focused on clarifying my priorities. These were: completion of my PhD; sharing the knowledge I have gained with the Australian extension community; creating a succession plan to ensure the future of RDS and its on-going mission; and ensuring the current and future wellbeing of my husband and three children.

Going back to the beginning of the story of the PhD, after graduating in agricultural science in 1987, I decided to work firstly as a rural journalist and then as a horticultural extension officer in the then Department of Primary Industries, Water and Environment (DPIWE). The journey of this PhD began in 1993 when I was approached by the emerging Tasmanian pyrethrum industry and awarded a scholarship from the University of Tasmania to examine the production of pyrethrum from seed. My manager at the time, Dr Rowland Lawrence, challenged me to consider whether this was what I **really** wanted to do. What Tasmania

needed, he thought, was someone who understood the people side of farming – and with my background in journalism, he felt I was the appropriate person to make a contribution.

As the same time, the DPIWE Vegetable Branch (where I was then working) had been successful in gaining funding from the Horticultural Research and Development Corporation (HRDC now HAL) for the project "Improving the adoption of advanced potato production and handling practices". The project aimed to address the apparent problem of the lack of adoption of technology in the Tasmanian potato industry. Lack of adoption was considered to be the result of ineffective extension techniques. The project assessed the issues that restricted achievement of maximum productivity, and sought to develop innovative adult learning programmes to transfer information to growers. With an APA scholarship and funding from HAL, this was an attractive proposition. However, there were some drawbacks. No-one in the DPIWE had ever done any social research before – and the methodology for the project had already been fixed by the scientist who wrote the proposal. My industry supervisor was a potato expert, rather than an extension researcher. Similarly, no-one in the School of Agricultural Science at the University of Tasmania had ever done any social research before either – my academic supervisor specialized in the development of new crops, rather than being a rural social researcher. Also, I had never done, seen or heard of social research before! So we all knew it was a risky project. I recall lying with David on our bed in our little Ulverstone cottage, looking up at the beautiful Baltic pine ceiling and tossing up all the pros and cons of doing a PhD in science or in social science. "If you do the people project, you'll have the greater challenge – but you'll find it more rewarding", David said. And so we agreed. Social research for me!

Taking up the scholarship, I initially took leave without pay from my employer, DPIWE, but was still based at the DPIWE offices in Devonport. With poor links to academic supervision in Hobart, I was pretty much on my own. So I started from the perspective of extension research. This was an area of poor quality research and a lack of a tradition in publishing in academic journals leading to a large quantity of low quality material, and a low quantity of high quality material. I also thought that there was a high level of jargon. I read as much as I could and attended the 1993 national extension conference in Queensland, the inaugural conference of the Australasia Pacific Extension Network (much later becoming its National Secretary). At the time, I found it difficult to understand much of what people were talking about!

Eventually my reading in extension research revealed an opportunity to use Röling's AKIS perspective (the agricultural knowledge and information system) and consider how the system was structured in the Tasmanian potato industry. Another valuable influence was the learning facilitation framework for New Zealand dairy farmers of Tom Phillips, which considered who (within the family and outside) was involved in what decisions and at what stages during the decision making process. I started my research by conducting a series of focus groups in the north of Tasmania. This research indicated the significant role of external capital (primarily

agricultural consultants and contracting firms) in farmer decision-making. A model of farmer decision-making was developed that focused on the role of the (male!) farmer within the context of the industry and the international marketplace. A series of farm family case studies examining these issues was then undertaken. These case studies illustrated the independence of the family within the broader operating environment.

Meanwhile, reading in the area of rural sociology alerted me to research into contract farming (notably Winson, 1990; Burch, 1992; Friedland, 1981) and led to an introduction to the Australia Agrifood Network, a group of social and economic researchers studying Australian agriculture. Exposure to this group revealed the extent of international work on agri-food restructuring (especially Davis, 1980; Buttel, 1980, 1990; Lawrence, 1987, 1990, 1992), and the relevance of this to the Tasmanian potato industry.

The sociological concept of subsumption, in particular, appeared to be one worthy of further exploration in the Tasmanian context. Subsumption is the penetration of agriculture by external capitals (non farm family capital), such that external capital takes control of one or more of the factors of agricultural production: land, labour and/or capital. Direct subsumption is where the means of farm production are directly owned and controlled by external capitals. Indirect subsumption is where external capital has some form of indirect control over production relations on the farm.

Although my project was already well down the track in terms of elapsed time (but devoid of theoretical content), I decided to undertake a quantitative survey in order to examine the extent and nature of subsumption in the Tasmanian potato industry. Further, following a reading of Gasson and Errington's 1993 book "The family farm business", I realised that I had previously (like the rest of extension in Australia) seen the male farmer – rather than the farm family – as the central decision maker in agriculture. The analysis by Gasson and Errington (1993) also demonstrated that farm families have the ability to use strategies which allow them to adapt to the penetration of external capital. As a result of this realisation, I felt that what I had done in my PhD to date was really only preliminary background material, and that this was now the actual start of my real PhD. So, in 1995 in order to examine whether or not family farm businesses in Tasmania were able to manage the influence of corporate interests, further data was obtained from farm families and through interviews with key informants in the potato industry.

By this time, David had also been awarded a PhD scholarship – ironically to study the production of pyrethrum from seed! We moved to Hobart in 1995 to be based at the main campus of the University. In late 1995, I was surprised to be pregnant with our first child, and therefore worked hard to try and complete the thesis before going on maternity leave – but alas, there was still the completion of the analysis of the quantitative data to go. Backing up my material before I left for leave, I accidentally lost significant parts of my data. Much of it was still on hard copy, but the loss of the electronic data was devastating. I decided not to

worry about recovering the data until I returned from maternity leave. Sadly, however, the little baby girl was stillborn at 42 weeks. A period of grief followed.

I returned to University in late 1996 in a new role as Rural Sociologist and Lecturer in Extension in the newly created Tasmanian Institute of Agricultural Research (TIAR). I was required to complete my thesis outside of work time thus causing further delays. My main work tasks became research, teaching and supervising Honours and Masters students (Shane Broad, Guy Robertson, Jane Weatherley, Tim Tabart, Anna Renkin and Jan Horton). I undertook externally-funded project work, including much of what is the basis of the publications presented in this final version of the thesis. In particular, a RIRDC funded review of extension research sowed the seeds of thought about what was needed to improve the effectiveness and efficiency of extension in Australia.

TIAR provided a number of opportunities that contributed to the evolution of the thesis and of my own career. The first was attending two international conferences in 1997 courtesy of a Farrer Memorial Scholarship. A conference field trip in Ireland provided me with a clearer concept of 'rural development' as an *active* process for enabling change in regional communities. I gained a broader perspective of the type of support that could be used to achieve social and economic growth in regional communities.

Another opportunity was the ability to participate in Executive Link, a family farm business extension programme run by Resource Consulting Services. Executive Link brings together groups of about six farm businesses as a Board meeting three times a year, for a duration of three years. Each business couple shares their people, financial and production information with other Board members to obtain strategic advice and feedback. My participation as a member of a Board greatly enhanced my practical understanding of decision making processes in family farm businesses, and in particular an appreciation of the critical role of all family members in key management decisions. An observation was that the more money being spent, or the bigger the decision, the greater the influence of the female partner in the decision. This experience also provided the inspiration for us to start our own business, which we commenced part-time in 1999. In 2001, we both left University employment to work full-time in our business.

During my time at TIAR, two more children arrived, Tom in 1998 and Ben in 2001 (both without surprise). Progress on the PhD was obviously slow. Finding time outside full-time work, children and the newly created business was near impossible. My perceived need for the PhD was not strong. Changes to University rules and funding mechanisms put pressure on the UTAS administration to withdraw my candidature, and in 2001 my candidature lapsed.

Just before I left UTAS in 2001, I put a case to the Board of TIAR for the appointment of a high level Rural Sociologist. The case was accepted and Prof Frank Vanclay was subsequently appointed in January 2002. Frank provided enthusiasm, intellectual support and

confidence that completion of the PhD could be a reality. I re-enrolled in a PhD programme in 2003. However, another baby (Sarah) arrived in 2003, and the increasing demand for the services of RDS made the challenge of balancing work and family with study difficult.

At this time, I was still planning on a conventional thesis based on a research question around the concept of subsumption. Because of the extensive time delay since the original research, in order to refresh the research, additional interviewing was undertaken. Potentially this was beneficial as it enabled a longitudinal study to be undertaken. The data was analysed and considerable progress was made towards writing the chapters of the thesis.

In March 2006 I was diagnosed with breast cancer. At this time the business had significant contracts – nationally and locally – for which I was the lead deliverer. The next 12 months involved a juggling of treatment with project delivery and little time for anything else. Despite every intention to complete the thesis, the conflicting demands of family and work, and the fluctuating moods brought about by the condition and its treatment led to very limited progress on the PhD.

In the 2007 PhD annual review, just as we were discussing my withdrawal, consideration of all the possible alternatives available to me led to the suggestion of submitting a thesis by publication. A close scrutiny of the rules relating to thesis by publication, together with an assessment of several other theses by publication that have been submitted through the School of Agricultural Science revealed that I had more than enough publications of an acceptable standard to proceed along this course. With Prof Vanclay's help, I proceeded to choose a selection of publications for inclusion in the thesis and to write an introduction to accompany them.

I hope that the publications assembled in this thesis will provide guidance and inspiration to the extension community in Australia. I further hope that they will be a valuable resource for informing extension providers about family farm businesses, and about the characteristics of successful extension programmes. This work, which began as a study of the subsumption of Tasmanian potato farmers, has now turned full circle, as I now work closely with the farmers and their agribusiness partners – as a broker – to identify family farm business needs so that they can be matched with appropriate services. The principles of understanding family farm businesses and of working to address people's needs are applied across all our work in Rural Development Services.

It has been very gratifying to finalise this project, with all its ups and downs. It is dedicated to my husband David in memory of our journey together, to the sacrifices we made, our shared passions and to our achievements. Thank you so much for being there for me.

Introduction: Enabling change in family farm businesses

Amabel Fulton
written for this PhD.

Family farming has been, and still is, the backbone of Australian agriculture. Since settlement, family farm businesses have prevailed in the face of on-going and repeated threats to their survival: fire, drought, environmental degradation, declining terms of trade, debt, the technological treadmill, declining social status, reduced services in rural communities, and the market domination of multi-national processors, distributors and retailers. According to most theorists from a range of disciplines, however, family farm businesses exposed to these kinds of forces are unlikely to survive. Yet, despite their prognosis, Australian farm businesses – large and small – continue to be owned and managed by families. While it is difficult to obtain precise figures, and they vary by commodity, it is likely that family farming exceeds 90 percent of all farms (cf Gray and Lawrence, 2001; Vanclay, 2003).

Australia's family farm businesses are operating within an advanced industrialised agricultural system. The industrialisation of agriculture over the last century has led to massive changes in the social and physical structure of agriculture. This process has included mechanization (e.g., tractors, harvesters and irrigation), chemical farming (e.g., fertilizers and pesticides) and food processing (canning and freezing). These activities have allowed the penetration of industrial and financial capital into the agricultural production system through, for example, the provision of credit, the supply of farm inputs, and vertical integration. As such, farm businesses are a small part of a larger food system which encompasses all aspects of food production, from the supply of agricultural inputs, through on-farm production, to food processing, distribution and consumption. The system is influenced by the relationships between its components and also by the physical farm environment, state farm policies, international food trade, credit and financial markets (Bowler, 1992).

The industrialization of Australia's agriculture has made it more productive and more efficient, but also more expensive, less profitable and more environmentally damaging. While the gross value of farm production has been increasing, the terms of trade for Australian family farm businesses have declined. In addition, there has been a continuing decline in the number of farms, perhaps by as many as 2,000 per year (Vanclay, 2003; cf Garnaut and Lim-Applegate, 1998), and in the number of people employed on farms. Over time, there has been a shift in income sources from the farm being the only source of income to a situation where much income is earned off-farm. Thus, Australia's family farm businesses have experienced significant change. These changes have presented opportunities and challenges for family farm businesses seeking to continue into the long-term.

Extension has been an agent in the delivery of these changes, as well as being the source of assistance to prevail. Extension itself has undergone change in the face of neoliberalisation, initially from providing one-on-one services for farmers at a local level, to providing a reduced service provision through group extension and through being centralized, to being dismantled as a state structure in some states of Australia. Nevertheless, extension services continue to be provided by a new range of deliverers, such as, for example, my own company, Rural Development Services.

Enabling change in rural Australia

Government has continued to support family farm businesses over time to manage change to ensure their long-term sustainability and that of the natural resources which they manage. One of the key mechanisms it has used, since early last century, has been extension. Extension is defined as "the process of enabling change in individuals, communities and industries involved in the primary industry sector and with natural resource management" (SELN, 2006 p.4).

Historically, extension was a service delivered by officers of the State governments of Australia to support on-farm production, and to accelerate adoption of the latest research and development. This support, which delivered private benefits to family farm businesses, was considered to deliver public benefits in terms of economic growth and food security. During the last decade or so, the funding mechanism for extension has changed, and natural resource management has become a major element of the extension message.

Over the years, family farm businesses have had access to a plethora of support to assist them to manage change. The effectiveness of this support, in terms of achieving the goals of the investors (the government and the family farm businesses), has been questioned. This thesis brings together studies on the family farm business, and on extension, to explore some of the limitations of extension delivery in Australia, particularly in relation to its ability to address the needs of the family farm businesses it seeks to support.

Family farm businesses

Defining the family farm is difficult because there are so many different aspects to the family farm business, and definitions tend to be constructed for theoretical purposes, for example, some emphasize the role of family members in the farm work; others focus on the ownership of the farm by the family; while others examine the nature of the relationships between the farm family with non-family organisations. The definition that underpinned this thesis is that of the ideal type of family farm business postulated by Gasson and Errington (1993). Their

definition emphasised family farming as a form of family business that would ideally have the following five typical characteristics:

1. A combination of ownership and management
2. Business principals (ie owners) related by kinship or marriage
3. Family members providing capital and labour
4. The family living on the farm
5. Intergenerational transfer of assets and control

This approach is distinct from other definitions in that while family members are required to provide capital and labour, they are not required to provide *all* of the capital and *all* of the labour *all* of the time. In addition, the family farm is considered as a business, a productive unit providing a return on land, capital and labour to its owner-managers.

Gasson and Errington's definition, however, gives little prominence to the farm (as a biophysical, environmental entity) as a key component of the family farm business. Rather, it prioritises the business and family components. As such, it ignores the relationship between the family and the land, as well as between the business and the farm's natural resources and biophysical constraints. These relationships will be explored later in this introduction.

The family farm business is the predominant structural unit of Australian agriculture. Of the 140,700 farm businesses in Australia in 1997, 98 percent were run by non-corporate owner managers (Garnaut and Lim-Applegate 1998). Of these, 81 percent were run by two or more family business partners; at least 85 percent of the labour used in these businesses was provided by members of the farm business; 73 percent of families lived on the farm (Garnaut and Lim-Applegate 1998); and in the majority of cases there had been intergenerational transfer of the farm business to family members, and an ongoing desire to continue that tradition. It is likely that these figures would still be generally indicative of the situation a decade later, even if the total number of farmers will have declined even further.

Enabling change in family farm businesses

Drawing on the literature and research on family farm businesses and extension in Australia, the papers in this thesis contribute towards the development of a conceptual framework for understanding the family farm business, and for designing change programmes to address more effectively the needs of these businesses.

The primary argument of the thesis is that as the dominant structure of Australian agriculture, the family farm business is central to enabling change in rural Australia. The family farm business is considered here as an interaction between the family, the farm and the business. It is not considered as an individual owner-manager farming as a sole operator. Rather, it argues that the family farm business is an organisation, and the workings of this organisation need to be well understood if efforts to enable change in rural Australia are to be effective.

A deep understanding of the family farm business – its components and its interactions – is critical to designing extension which addresses the *needs* of the *right* people at the *right* time. A service brokering model – which incorporates this approach – is proposed as an alternative to the current product-push model of extension in Australia. A service broker is defined as an individual or organisation with the role of taking an active and purposeful role in identifying service needs. A service broker considers the whole suite of present and potential product and service opportunities and actively matches needs to products and services, acting in the best interests of the client. Service brokers will be most effective in their role when they understand the family nature of the farm business.

A conceptual framework for understanding the family farm business

As previously mentioned, understanding how farm families change and adapt is important for understanding rural society, agricultural systems and natural resource management on private land. Family farming can be considered as the interaction between the family, the land which is farmed, and the farm business (see Figure 1). As such, any change to the nature of any of these components has an impact on the nature of family farming, and on the other components of the farm family business.

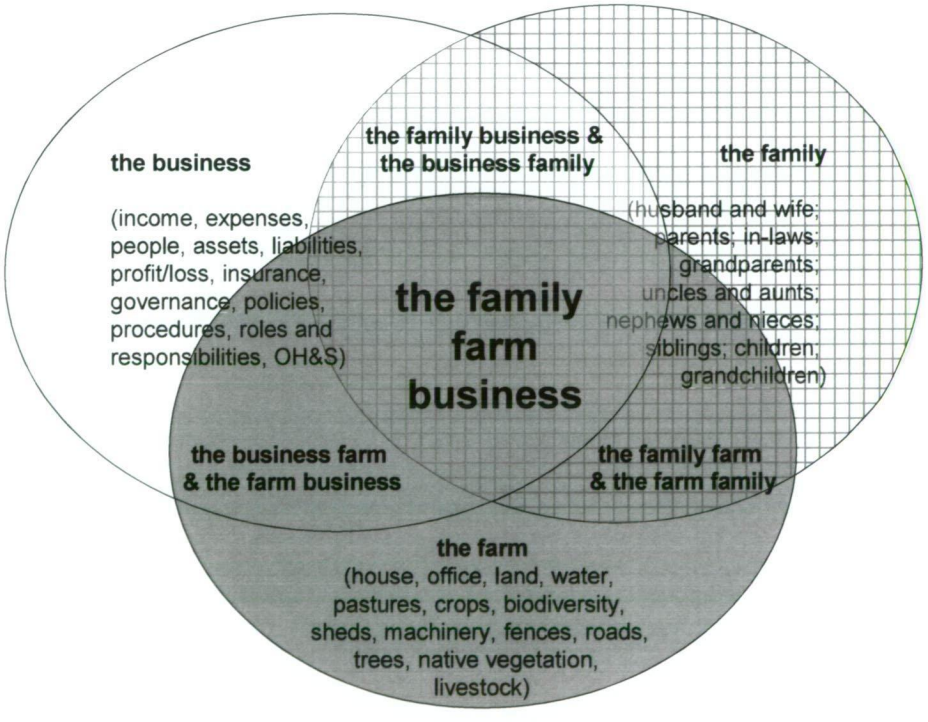

Figure 1: A conceptual framework for understanding the family farm business – the interactions between the family, the business and the farm

Source: Developed for this thesis

From the conceptual model of the family farm business, a number of distinctions can be made:

- The family business
- The business family
- The family farm
- The farm family
- The business farm
- The farm business
- The family business farm
- The business family farm
- The family farm business
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This list and Figure 1 demonstrate the variety of forms the family farm business can take. Family farm businesses are all of these at different times, in different situations. Unlike Gasson and Errington (1993), this framework also demonstrates the importance of the farm as a component of the family farm business.

Interactions between the components of the family farm business

This section examines the interactions between the different components of the family farm business by considering how a change in one component affects another and the whole. I then go on to explore how the whole interacts with the social, political, environmental, technological and economic forces acting on it.

Changes within family affect the business

A change to the farm family, such as the arrival of children, may reduce the availability of parents for farm work. This impacts on the farming business as decisions need to be made as to: (a) whether the level of labour provided to the farming operation should be maintained (and one partner may need to work longer hours or employ additional labour); (b) whether changes should be made to the farming operation to reduce its labour requirements and/or increase profitability; and (c) whether the role of the parents may need to change to allow for continued contribution to the farm business while also providing care for the new family members.

Changes to family affect condition of the farm: the natural resource base

The changes to the farm family and subsequent operation of the farm business will in turn have consequences for the land which is being farmed. A reduction is family labour availability may mean that particular farm activities considered 'non-essential' are put on hold for a number of years. What is considered 'non-essential' will depend on the family in question, but could include activities with a low return or of a long-term nature. These may be activities such as tree planting, fencing-off riparian zones, or re-fencing the property according to land suitability. Alternatively, the family may choose to look at ways to cut costs, such as reducing fertilizer inputs, or reducing stock numbers to eliminate the need for hand-feeding during poor seasons. Any of these changes will impact on the condition of the farm's natural resource base.

Changes to the farm family can indirectly impact on the natural resources of the property through changes to the farming operation. The presence of a successor, or even the possibility of a successor, can provide motivation for long-term decision making – that is, decision making beyond the life of the current parents and even of their offspring – to ensure the business and the land are in the appropriate condition to continue to support the farm family for generations to come. Decisions which in other circumstances might seem economically irrational due to the long time scale for return on investment – such as the planting of trees for shelter or biodiversity – are more easily taken within such an inter-generational mind-set.

Changes to the farm's natural resources impact on the business and then the family

Changes to the condition of the farm's natural resources may also impact on the farm business, and subsequently the farm family. Examples of such changes include reduced productivity through soil erosion or fertility decline, salinity, declining water quality or declining biodiversity. Such extreme or incremental phenomena will impact on each family and its farm business differently, depending on the nature of each family and on the nature of its farming business. The impact will be buffered to a greater or lesser extent by factors such as debt levels or the dependence of the family farm business on the income from the degraded areas. As discussed previously, the impact on the farm business will have consequences for the farm family as a social and economic unit.

Changes to the farm's natural resources impact on the family and then the business

While the indirect impact of natural resource decline on the farm family is evident, such changes can also directly affect the farm family, which in turn affects the farm business and the condition of the natural resources. Some farm family members, for example, may value the land's capacity to be productive very highly. The decline in the land's ability to produce may significantly affect their sense of self-worth, with consequent impacts on their mental health and on the rest of the farm family members. This, in turn, can affect the running of the farm business, as morale and optimism declines, and the farm family business can get caught

in a downward spiral of economic, social and environmental decline. Alternatively, such a farm family member's passion for a productive property may inspire them to take innovative approaches to ensuring the long-term viability of their business and property.

External forces and the family farm business

The discussion thus far has demonstrated the impact of family changes on the farm business, and on the condition of the natural resource base. It has also demonstrated how a change to any one of these three components has consequences for one or both of the other components. This discussion, however, has been limited to internal factors – those factors within the farm family, within the farm business, or within the natural resources. External factors can also affect the natural resources, the farm business or the farm family, with subsequent implications for the interacting components of the family farm business (see Figure 2).

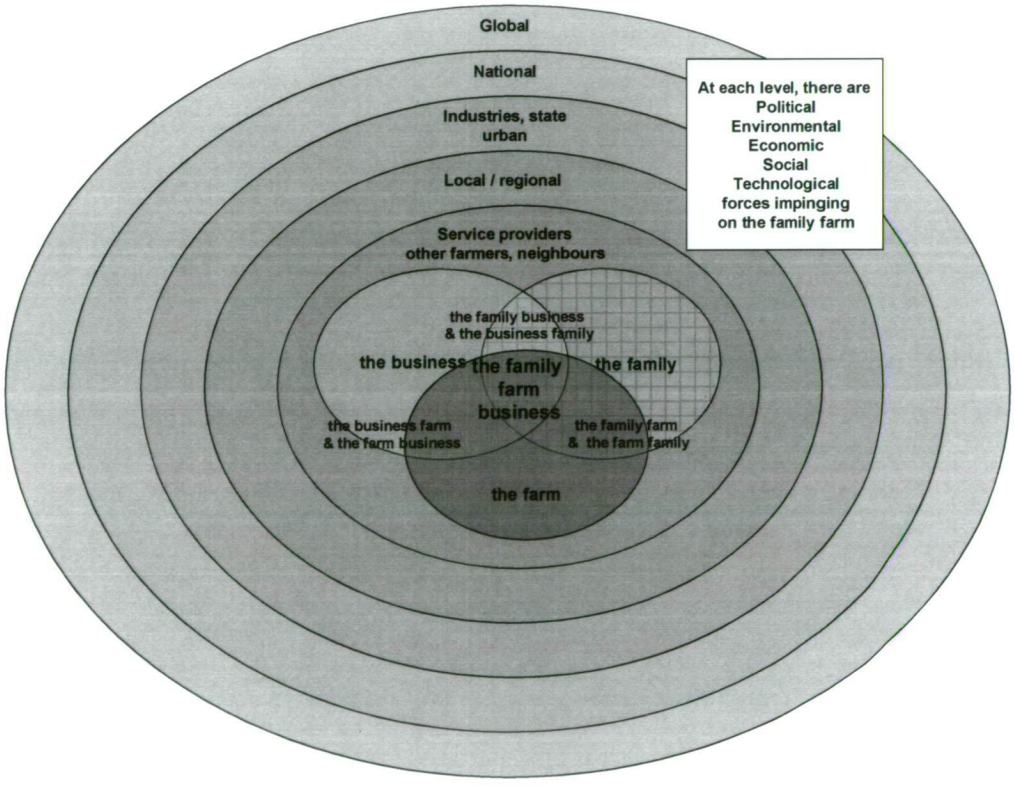

Figure 2: The interactions between the family farm business and the broader environment

Source: Developed for this thesis

The impact of external forces on the business and thus the family and farm

Examples of external factors may be drought, declining commodity prices, or changing societal norms. Each of these impacts directly on one or more component of the family farm business, with flow-on impacts for the other components. Drought and/or declining commodity prices, for example, may mean that the income from the farm becomes insufficient to support the family unit. Members of the farm family may respond to this by altering their own activities (such as seeking off-farm work or reducing living expenses) or by altering the farming activities (such as reducing farm expenses or increasing productivity). Drought and changes to farming activities will also impact on the condition of the natural resources, with subsequent consequences for long-term environmental sustainability.

Impact of external forces on the family and thus the business and farm

As discussed previously, drought can also impact on the social health of family members, with flow-on effects for the business and natural resource management. Declining economic performance also affects family member morale, with consequences for farm management and natural resources. Societal changes also act most directly through the farm family. An example of societal change is women seeking to improve their status through seeking professional employment off-farm, or alternatively, by taking a greater role in the management of the business. This in turn has consequences for the farm business and the farm, whether it be through improved off-farm or on-farm returns, or through the injection of new enthusiasm and skills into the management of the business and farm.

This discussion has illustrated the impact of internal and external factors on the farm family business. A complex and interactive system is apparent, with multiple components and factors playing a part in determining the direction of the farm family business. This system can be further elucidated through consideration of the sub-components of the farm family business, and of the wider social and economic context within which it is operating.

Impact of external forces on the farm and thus on the business and the family

Examples of external forces impacting on the natural resources base of the farm include drought, climate change, road developments (cutting through farm land); town water developments (innundating and/or resuming farms); and new regional infrastructure developments (pulp mills, mines). Drought can lead to soil erosion, pasture degradation, weed proliferation and tree decline. Climate change can alter the entire microclimate of the property. Major external infrastructure developments can have multiple impacts, depending on their specific nature, the most obvious one being the loss of access to natural resources. These changes can have positive and negative effects on the business, and on the psyche of the family, and the ability of the farm to provide sufficient income to continue to support the on-going family needs.

Enabling change in family farm businesses: a new perspective

The discussion so far has demonstrated the complexity of family farm businesses, and the inter-relatedness of their components. Family farm businesses are working in an environment of constant change – whether that be internal from changes to the family circumstances, or external as a result of government policies or climatic change. Many of these changes can be occurring at the same time. For each family, the specific changes being dealt with at any one point in time will be a function of the nature of the family, the nature of the farm's biophysical resources, and the nature of the farming business. The type of changes being dealt with will be dynamic – changing as the family, the farm biophysical resources or the business changes. The changes any family farm business is experiencing will be specific to them, and, while some of the forces will be similar to those being experienced by other family farm businesses, the nature and extent of the impact of each force will be different for each family farm business.

Just as Maslow's hierarchy of needs illustrates that an individual's base needs must be met before higher needs become a priority; so too must a family farm business's specific needs 'at the time' be addressed before other issues become of significant concern. This means that before family farm businesses will be interested in listening to the latest extension priorities of government or industry, family farm businesses will be seeking to address their own needs first. Of course, the member of the family farm business which has greatest influence in the particular area of need will normally be the one who will have the most influence on the actions that are taken to address this need.

To enable change, then – as extension is designed to do – efforts need to be focused on addressing the specific needs of individual family farm businesses: at the right time (i.e., when it is of priority for the family) and with the right people (i.e. the appropriate member(s) of the family farm business for that particular issue). Extension designers and providers need to be able to understand and address the specific needs of each family farm business at the right time, with the right people.

Product-push vs needs-based extension

Family farm businesses have access to a wide range of private services, and public funding, to assist them in the process of managing change:

- publicly-funded, publicly-delivered extension (for example State government farm advisers);
- publicly-funded, privately-delivered extension (for example Property Management Planning delivered by private consultants through the regional Natural Resource Management (NRM) bodies, funded by the Federal government's Natural Heritage Trust);

- privately-funded, privately-delivered extension (for example business consultants paid for fully by the client); and
- jointly (public and privately funded) extension, delivered by both the private sector and the public sector , for example
    - Landcare (where Federal government investment is matched by in-kind support from the private sector);
    - FarmBis (where the cost of training is partly paid for by participants, and partly by a joint State and Federal government subsidy); and
    - Research and Development Corporations (where levies from farm production are matched by the Federal government and allocated to industry R&D).

From the family farm business perspective, there is a continuously changing plethora of services on offer, usually delivered by a short-term employee. The family farm business may or may not be aware of all the services on offer. The short-term employee's role is to engage farmers (not necessarily family farm businesses) in using the products and services offered through the employee's project. These products and services may, or may not, meet the needs of the family farm business at that time. More often than not, the short-term employee has a low level of understanding of the needs of family farm businesses in general, or of the specific needs of the family farm business the employee is targeting. With each service provider focused on delivering their project, there is no single service provider who has a holistic understanding of the needs of the family farm business, or businesses in any particular industry or region. This product-push model of extension is shown in Figure 3.

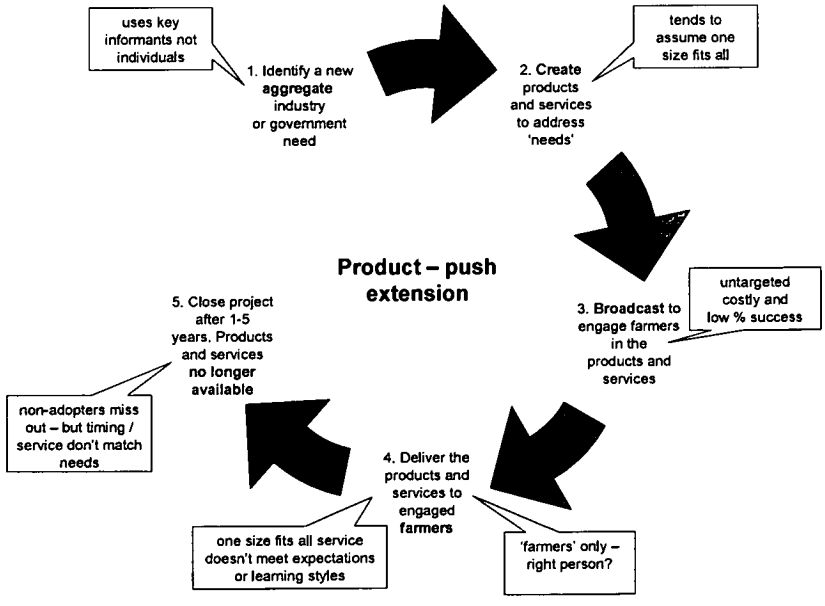

Figure 3: The processes and limitations of the product-push model of extension

Source: Developed for this thesis

The product-push model is typically used by research and development corporations and government to design and deliver on industry and government priorities. The key point to note about this model is that the needs are formulated at an aggregate level at the outset, with little customization taking place at any stage in the process.

As such, the major limitations of the existing service delivery models (as evidenced in the publications presented in this thesis) are:

1. The nature of the products and services provided is largely determined by the funder or the extension organisation, with little consultation with the end-users until the time of product delivery
2. The product or service is delivered by someone with little knowledge or understanding of the complexity of the nature and functioning of family farm businesses, or of the specific family farm businesses being targeted
3. The 'farmer' is considered as an individual, rather than as part of an organisation
4. The 'farmer' is largely considered as the senior male, rather than other members of the family farm business
5. Services are generically targeted to 'the farmer', rather than to the appropriate member(s) of the family farm business
6. Services are delivered without consideration of the specific needs of the non-senior male farmer members of the family farm business, as distinct from the needs of the senior male
7. Services are delivered without consideration of the interactions (and associated impacts) between different components of the family farm business, and the external environment
8. Services are provided as and when it suits the service provider, rather than at a time which best suits the family farm business

These limitations lead to inefficiencies and ineffectiveness in the delivery of individual extension projects as short-term employees often only work out what *should* have been done as the project draws to a close. In addition, there is a huge duplication of services at the regional level as each industry or sector (for example meat, grains and natural resource management) seeks to engage with the same family farm businesses on similar issues.

Services which address these limitations are more successful in enabling change (Kilpatrick et al., 2002; Kilpatrick et al., 2006). Such services are provided with a thorough understanding of the needs of family farm businesses, in the context of their external operating environment at the time. This ensures a needs-driven approach to enabling change, rather than a 'product-push' approach to change. In particular, the process of 'brokering' – identifying family farm business needs and then matching services to address these – provides a systematic framework for enabling change with family farm businesses. Such an approach to enabling change can ensure that the right members of the family farm businesses are receiving the right services at the right time.

This alternative model of needs-based extension is presented here, adapted from the brokering model discussed in Paper 7 (see Figure 4).

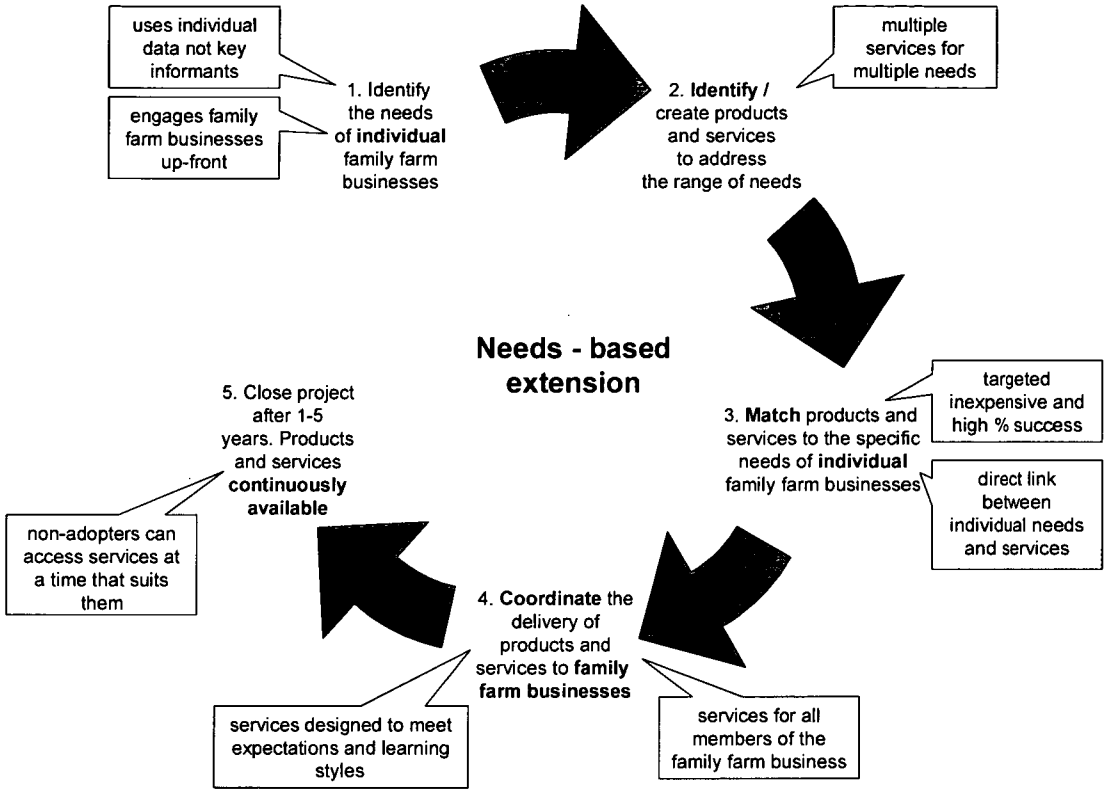

Figure 4: The processes of needs-based extension, demonstrating how these address the limitations of the product-push model presented in Figure 3.

Source: Developed for this thesis

The key difference between the needs-based model and the product-push model is that in the former, the products and services are designed to address the specific needs of the family farm businesses involved, while still delivering on the industry or government needs. Engagement takes place as the first stage of the process and is maintained throughout the project to deliver products and services to meet the needs of the family farm businesses involved. The products and services may or may not be those delivered within the scope of the core project – they are likely to include additional products and services available from other sources, which meet the specific needs of the family farm businesses involved.

Ideally, the products and services created have a built-in legacy plan to ensure their continued availability to family farm businesses into the future. For example, particular processes or

information packages could become standard services within the private sector, delivered as and when particular family farm businesses require them.

This model addresses the eight limitations listed earlier, in the following manner:

1. The nature of the products and services provided is largely determined by the family farm businesses, through full consultation with end-users at the time of product development
2. The product or service is designed by someone with significant knowledge or understanding of the complexity of the nature and functioning of family farm businesses
3. The 'farmer' is considered as an individual member of a broader family farm business, rather than being considered 'the' farm business
4. The 'farmer' is considered as one of a number of 'farmers' or partners in the family farm business
5. Services are generically targeted to 'the family farm business' via the appropriate member(s) of the family farm business for that area of decision making
6. Services are delivered with consideration of the specific needs of all members of the family farm business, as distinct from the needs of only the senior male
7. Services are designed and delivered with full consideration of the interactions (and associated impacts) between different components of the family farm business, and the external environment
8. Services are provided as and when it suits the family farm business, rather than at a time which best suits the funding body or service provider

Adoption of the principles and practices of needs-based extension by extension designers and deliverers has the potential to significantly increase the effectiveness and efficiency of extension project delivery. This increased effectiveness comes from allocation of resources directly to the issues of concern to the family farm business, rather than allocating resources to persuading the family farm business to reconsider its needs and priorities to match those of the service provider, or to 'finding' family farm businesses whose needs match those of the extension project (a problem in search of a solution). In addition, engagement is strong, as the extension provider is authentically attempting to address the needs of the family farm business. Engagement is also maintained over time, leading to increased trust and credibility of the extension provider over the long term (a major factor in enabling change). By working with the appropriate member of the family farm business, the extension provider is also well placed to influence decision making within the farm unit. Ultimately, because the products and services are matched to the specific needs of each family farm business, the rate and extent of adoption is much higher than when the degree of matching is not so complete.

Across a region, the adoption of needs-based extension by a range of institutions has the potential to significantly reduce the investment needed to support change, or alternatively, to

significantly increase the efficiency of allocation of this investment, resulting in an accelerated rate of change or adoption within the region. By adopting a needs-based approach which is fully informed of the other extension products and services available in the region, institutions can coordinate their efforts to broker their products and services across a wider audience in a more direct, timely and targeted manner.

While this discussion tends to contend that product-push extension is predominant in Australian extension, there are examples of programmes where elements of the needs-based model are incorporated in the extension design. There are also examples of needs-based extension being delivered, but this is more likely to occur where the extension providers have long-term, locally-based relationships with family farm businesses, and as such, are better placed to respond to the changing needs of family farm businesses in their region. There are, however, few examples of coordinated approaches to extension delivery. Until extension in Australia is able to rationalize its investments, and work cooperatively, the returns to government, industry and individuals will continue to be much less than is possible. Across Australia, a shift in focus from 'product-push' to needs-based coordinated extension would lead to a major breakthrough in the rate of improvement in the sustainability of our family farm businesses, our rural industries and rural and regional Australia.

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Paper 1:

The influence of the woolgrower's sociological environment on technology adoption

Fulton, A. and Champion, S. (1999) "The influence of the woolgrower's sociological environment on technology adoption". In proceedings of *CRC for Premium Quality Wool Technology Adoption Symposium Workshop 1999"*. Melbourne: CRC for Premium Quality Wool, pp.23-45.

This paper was co-authored with Dr Scott Champion, Lecturer in Animal Production in the School of Agricultural Science, University of Tasmania. Scott was a colleague and fellow lecturer at UTAS. His contacts in the wool research field led to the invitation to participate in the CRC Symposium. This paper is primarily a literature review with an analytical interpretation to provide insight into the distinct characteristics of woolgrowers in comparison to other types of family farm businesses. While I did the bulk of the research and writing, Scott participated in discussions relating to understanding the wool industry and provided editorial comment on the final draft.

The purpose of the paper was to bring new perspectives to bear in the development of extension strategies for the CRC for Premium Quality Wool. As a researcher in wool production, Scott Champion was aware of the lack of involvement of social scientists in the design and delivery of the CRC research projects. This paper presented an opportunity to inform the design of the final stage of the CRC, that of the communication of its outputs and outcomes to the farming community.

This paper is placed first in the thesis because it describes the characteristics of Australian family farm businesses in relation to the definition of the family farm business used by Gasson and Errington (1993). It provides a foundation by which to understand the characteristics of the family farm business, and how these characteristics interact and affect the adoption of technology.

This paper was the first attempt at synthesising the Australian literature on family farm businesses into the Gasson and Errington framework. Written in 1999, it is now not comprehensive, nor up to date, but over time it has proven to be a useful basis for many other research projects. At the time of writing Paper 1, my understanding of the pivotal role of women in the family farm business was only just emerging. On re-reading this paper now, this is evident in some of the language used, which embarrassingly implies or refers to the farmer as a male, and to his partner as 'the wife'.

The influence of the woolgrower's sociological environment on technology adoption

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Abstract

This paper argues that the development of effective strategies for technology adoption in the wool industry requires a detailed understanding of the farm family business. The paper defines the farm family business, showing it to be the dominant structural unit of the Australian wool industry. Its key components are examined. Agrarian ideology is shown to impact on the organisation of the farm family business, in combination with the family cycle and the desire for intergenerational transfer. The goals, labour use, decision making and human capital in farm family businesses are examined. It is concluded that for technology adoption efforts to be successful, these must recognise the diversity of farm family businesses and of those contributing to their functioning. This can be done by

- working with the particular member(s) of the farm family business involved in the decision making, decision taking and/or implementation of decisions relating to the technology;
- developing relevant technologies in a manner which considers the needs of the relevant parties;
- making the technology and associated education or training accessible to farm family businesses, particularly through the use of existing networks and communication structures; and
- focusing education and training efforts on all members of the farm family business, not just the male farmers.

Introduction

Understanding the sociological environment of woolgrowers helps us understand the key drivers of farmer behaviour, and thus technology adoption. The key drivers of farmer behaviour examined here are the goals of the parties involved, the division of labour on the farm, decision making and the quality of human capital on the farm. These tell us about the people in wool growing, and their role in on-farm technology adoption.

The wool grower has many relationships with society, some family, some work, some community. His/her sociological environment can be considered in terms of the individuals, groups, communities and forces for economic social and political change which impact on their everyday life. These components include:

- The woolgrower
- His/her partner
- The family (offspring, siblings, parents and other relatives)
- The farm
- The business
- Farm labour
- Farm and family service providers
- Personal, family, farmer, community and industry networks
- The wool industry and other agricultural industries of which he/she is part
- The farming, rural and urban communities, and
- Forces for economic, social and political change

Each component of the sociological environment differs for every wool grower – not all are married, each has a different family structure, a different farm, a different mix of farm enterprises, different networks, different communities and different forces for change. Each of these components interacts with the others. The way in which these interact will influence the strategies that farm families adopt to cope with the forces for change. So while some generalisations can be made, one of the key messages of this paper is the need to recognise the diversity and complexity of each wool growers' sociological environment.

This paper explores the wool grower's sociological environment and its implications for technology adoption. The focus is on the farm family business, one component of the grower's sociological environment. After defining what is meant by the farm family business, the paper describes three defining characteristics of farm family businesses: the agrarian ideology, the family cycle, and the desire for farm succession. It demonstrates how these impact on farm family goals, on the division of labour on the farm, on farm decision making and on the quality of human capital. The implications for technology adoption in the wool industry are discussed.

The farm family business and its place in the Australian wool industry

There are many definitions of family farming – the family labour farm, the family farm or simple commodity producers. The definition used here is that of the 'ideal' farm family business, as described by Gasson and Errington (1993). This emphasises farming as a form of family business. The farm family business has five defining characteristics:

The combination of ownership and management

1. The combination of ownership and management
2. Business principals related by kinship or marriage
3. Family members providing capital and labour
4. The family lives on the farm
5. Intergenerational transfer of assets and control

The main point to note is that while family members are required to provide capital and labour, they are not required to provide *all* of the capital and labour *all* of the time. This is a major difference between this definition and that of others and is appropriate given the nature of Australian wool growing enterprises. Based on this definition, the farm family business is the predominant structural unit of the Australian wool industry. Of the 46,300 wool growing businesses in Australia (Martin, 1998), 98% of these are run by non-corporate owner managers (Garnaut and Lim-Applegate, 1998). Table 1 shows some of the characteristics of Australian wool growing businesses. Table 2 shows some of the characteristics of Australian family farms.

Table 1 Characteristics of Australian specialist and mixed enterprise wool growing businesses

Characteristic	Specialist Wool	Mixed Enterprise
No. of sheep	3710	2170
Wool production (kg)	17000	10100
Labour units	1.9	2.1
Wool as a proportion of farm receipts (%)	61	15
Profit ($)	-16100	19800
Proportion of farms operating at a profit (%)	28	49
Total off-farm income ($)	18100	15800
Proportion of off-farm income as wages (%)	43	55
Disposable income per family ($)	17500	51000
Location		
Pastoral zone	11	4
Sheep-wheat zone	35	73
High rainfall zone	54	23

Source: Adapted from Martin (1998)

Table 2 Characteristics of Australian farming families

Number of farm businesses in 1996-97	140 700
Number of households associated with farm businesses	220 000
Number of people living in farm households	630 000
Commercial farms in the broadacre[a] and dairy industries 1994-95	
Number of households associated with farm businesses	143 700
Number of people living in farm households	409 100
Composition of owner manager households	
Owner manager only	9%
Owner manager and spouse	34%
Owner manager, spouse and householder/s under 20 years	33%
Owner manager, spouse and other adult/s	13%
Other	11%
Age of owner manager	52 yrs
Owner managers with postschool education	
Aged less than 40 years	22%
Aged 40-54 years	19%
Aged 55-64 years	15%
Aged 65-74 years	8%
Aged over 74 years	2%
Spouse with postschool education	
Aged less than 40 years	38%
Aged 40-54 years	29%
Aged 55-64 years	17%
Aged 65-74 years	9%
Aged over 74 years	1%
Work and income	
• Source of farm labour	
Operator	49%
Spouse	13%
Dependent sons and daughters	2%
Other sons and daughters	13%
Business partners, sharefarmers and other family labour	10%
Employee managers and other permanent employees	9%
Casual employees	4%
• Average family income	
Owner manager households without 'other' adults	$27 300
• Average family income from the farm business	
Owner manager households without 'other' adults	$12 000

Source: Garnaut and Lim-Applegate (1998)

[a] The broadacre industries included are sheep, beef, sheep-beef, crops and mixed livestock-crops.

To identify the extent to which wool growing businesses are family businesses, we need to assess them against the five components of the definition. The first characteristic is that ownership and management are combined. In Australia, 98% of wool growing operations are family businesses (Garnaut and Lim-Applegate, 1998). The majority of these owner-managers are male, averaging 52 years of age, with 16% having a tertiary education or equivalent. These characteristics are explored in more detail under the section on human capital.

Gasson and Errington's second requirement of a farm family business is that the business principals are related. The evidence on Australian broadacre agricultural properties, 98% of which carry sheep (Martin, 1998) is that 81% are run by two or more family business partners (Garnaut and Lim-Applegate, 1998).

The third requirement, for the family to provide labour and capital for the farm appears to be the case for most Australian wool growing properties. Owner managers, their relatives and other members of the farm business accounted for at least 85% of the hours of on-farm work in 1994-95, excluding contract and paid shearing work. Owner managers themselves provided an average of 50 per cent of the hours worked on broadacre farms. Spouses and adult sons were next in importance (Garnaut and Lim-Applegate, 1998).

In addition, Australian woolgrowers provide most of the capital they need to run their businesses with equity ratios at 88% and 87% for specialist wool producers and mixed enterprise wool-producers, respectively. Finally, there is intergenerational transfer of the farm business and most families live on the farm. The most recent survey showed that in 1994/95, 73% of broadacre families lived on the farm (Garnaut and Lim-Applegate, 1998).

The context of Australian wool growing, therefore, is dominated by farm family businesses. For every farm family we can see that there is a different combination of family factors leading to its distinct makeup. Often there are several households on the one farm, spanning a number of generations and varying in their involvement with the farm business. These arrangements are changing constantly as the family responds to external and internal pressures for change. The nature of these arrangements impacts on the family's goals, decisions, labour-use and human capital, and thus on technology adoption. Moulding these behaviours, however, are the agrarian ideology, the family cycle, and the desire for farm succession.

The nature of the farm family business in Australia

As the definition of the farm family business indicates, the nature of the farm family business is determined by its defining characteristics and their interrelationships. Three key issues are that farming is the key activity, that the family is the key social unit, and that intergenerational transfer is the characteristic determining the continuation (or reproduction) of the farm family business. This section examines these in more detail, starting with what it means to be a farmer in Australia. This is followed by how the creation, growth and maturation of the family

impacts on the operation of the farm business. Finally, typical patterns of intergenerational transfer in Australian farm family businesses are examined. This provides a useful background for considering the goals, labour-use, decision making and human capital of farm family businesses in Australia.

The Australian agrarian ideology

The agrarian, or rural ideology, is the value base on which Australian farming has been built. In his study of Australian 'countrymindedness', Aitkin (1988) reports that the 'high' period of the ideology was between 1925 and 1960. Key elements of the ideology are as follows:

i. *Australia depends on its primary producers for its high standard of living, for only those who produce a physical good add to a country's wealth.*
ii. *Therefore all Australians, from city and country alike, should in their own interests support policies aimed at improving the position of the primary industries.*
iii. *Farming and grazing, and rural pursuits generally, are virtuous, ennobling and cooperative, they bring out the best in people.*
iv. *In contrast, city life is competitive and nasty, as well as parasitical.*
v. *The characteristic Australian is a countryman, and the core elements of national character come from the struggles of country people to tame their environment and make it productive. City people are much the same the world over.*
vi. *For all these reasons, and others like defence, people should be encouraged to settle in the country, not the city.*
vii. *But power resides in the city, where politics is trapped in a sterile debate about classes. There has to be a separate political party for country people to articulate the true voice of the nation.*

(Aitkin, 1988:56)

Craig and Philips (1983) identified a strong agrarian ideology in a sample of 550 South Australian wheat growers. The ideology was held strongly in all age groups. The authors suggest this was possibly because those who hold it most strongly are the ones most likely to inherit the family farm or to enter farming. Farmers in the lowest quartile for agrarian attitudes were younger (37.8 yrs, cf. 39.7 for the whole sample), with more education, less farming experience and farmed larger properties. The authors noted the contradiction between these strongly held values and the reality of Australian farming, where growers experience increasingly centralised control of their inputs and outputs (Lawrence 1980). They suggest the value system is reinforced by the media and the urban population, and farmers may be using it to legitimise their position. The sample may also have been biased in that it only surveyed existing farmers, not those who had left the industry and who may have held different values.

There is some evidence, however, that these values are changing. Gray (1991) explored the values and beliefs guiding farm family expectations for intergenerational transfer in New South Wales. Structured one-on-one interviewing of 16 mixed farm family couples identified

that most held the agrarian ideology very strongly. However, the small business aspects of the ideology appeared to be strengthening, and the agricultural aspects diminishing. Recent debates on the environmental consequences of Australian agriculture and concerns about chemical use and genetically modified foods are resulting in a negative image of agriculture. Whether or not this is tending to reinforce or challenge Australian wool growers' agrarian ideology is yet to be demonstrated.

The key elements of the agrarian ideology are translated into a number of traditional values (Alston, 1997). The first is the acceptance of the male's right to pre-eminence and leadership in the family, on the farm, in politics and in land ownership. Conversely, there is an acceptance of domestic ideals for women, whose role is seen as bearing the children, nurturing the family and maintaining a stable home. These values are held by both men and women in farming and supported by rural organisations, the media and politics. They are also reflected in the sexual division of labour where men are responsible for the business tasks on the farm, and women are responsible for family tasks and aspects of business administration and communication.

The desire for independence and self-sufficiency is also an important component of the agrarian ideology. This is supported by a strong work ethic, where working long and hard outside is valued more highly than office work. The agrarian ideology incorporates a belief in man's right to use the land as he sees fit without government interference. As Alston (1997) notes, the attitudes of farmers to the roles of government in society are highly complex and paradoxical. Farmers strongly reject the welfare state (except the aged pension) and yet may seek a continued role for government with respect to price support or commodity marketing arrangements.

These characteristics are changing, as women are playing a larger role in agriculture both on the farm, and in politics. Land owning still confers status, even if less so than in the past. Farmers are giving up their independence as a strategy for ensuring their continuation in farming, whether this be through borrowing to expand, growing under contract, employing labour, leasing land or using the advice of outside experts. Their attitudes to the management of land are also changing, as are their attitudes towards government. Nevertheless, the agrarian ideology is still strong in rural Australia. On one hand it secures a committed workforce to staying in agriculture for the long term. On the other it reinforces and preserves farming in its present form and can make agriculture highly resistant to change.

The family life cycle

The progress of the family life cycle is a critical difference between an industrial business, and a family business. The changing phases of the family result in change over time with respect to income needs, labour supply and decision making roles. These phases interplay with the business cycle of the farm, often leading, or following, major points of change. In the UK, Nalson (1968) identified three distinct phases of family development. In Ireland, Symes

(1972) described seven stages. Regardless of the classification system used, the family life cycle is a significant force for change in the farm family business. This is demonstrated below in Figure 1 using the three phases of Nalson (1968).

The early phase is when all the children are below school leaving age or the farmer's wife is of child bearing age but has no family. During this time, the income needs of the family are high. Similarly the demand for capital to develop the farm business is also strong, particularly if land has recently been purchased. This can lead to competition between farm and family activities. While the parents are young and energetic, only their labour is available for work on the farm. In the case of the woman with young children, only a small amount of time is available for farm pursuits. As the children grow older the female may seek off-farm employment to supplement the family income and support the children through their later stages of education.

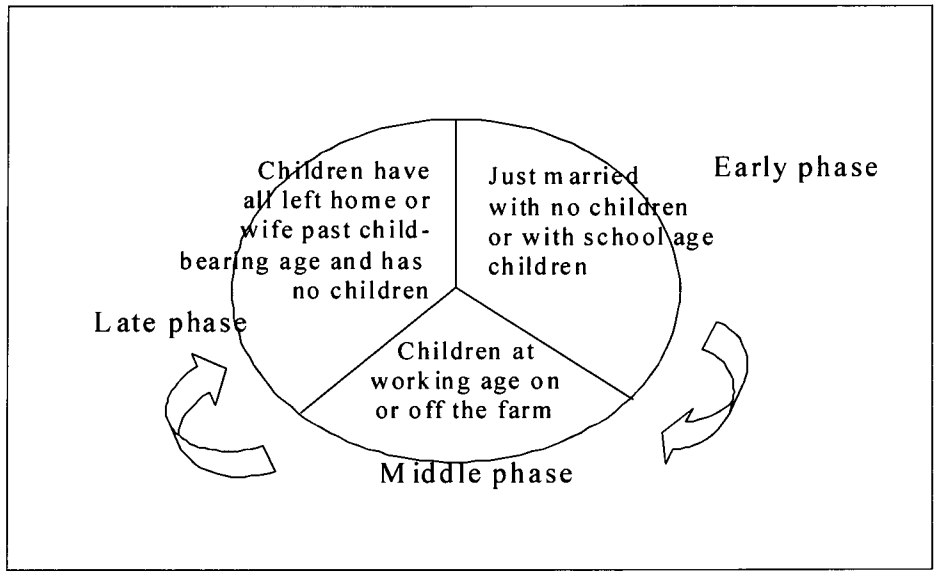

Figure 1. Nalson's (1968) three phases of the family cycle

Nalson's (1968) middle phase is the period in which some of the children are working on or off the farm. During this time the family demands can be even higher than when the children were young. However, there is often an increase in the supply of labour. This means that if the family had sufficient labour early on, it now has a surplus. To accommodate this changing labour supply, the family may make a major change to its farming operation. This may involve purchasing land, diversifying, selling land, pursuing off-farm work or intensification of production. This can also be a time of conflict between parents and children as the young are keen to be independent and the older are reluctant to relinquish control.

The late phase is that when the children have left home, or the wife is past the age of childbearing and has no children. Family needs are lower than in the early and middle phase, and the increasing age of the parents may reduce their mental and physical energy. Older farmers are typically risk adverse, concentrating on securing the family asset. The tendency to

save is stronger than the urge to invest and expand, and farmers are motivated to reduce working hours.

The family cycle is useful for understanding how the income needs and labour supply of the farm family business change over time. Often the two factors are counterposed such that difficult decisions need to be made about employment, investment and lifestyle. The cycle of growth, development and decline results in constantly changing goals and roles within and between family members. When the son starts to be given responsibility for the running of the farm for example, the mother is often no longer consulted on farm decisions (Craig, 1986). The family cycle demonstrates how farm change can often be directly linked to changes within the internal operations of the farm family.

Farm succession

Part of the agrarian ideology is land ownership. In the past land ownership has at the minimum assured a livelihood and at the maximum extreme power and wealth. The social standing and power provided is equivalent to that of non-landed tertiary trained professionals, without the requirement for education. While it is important to own land, it is not necessarily important to have continuous ownership of the one piece of land. Nalson and Craig (1987) found that only 5% of the farming population claim to be committed to a piece of land. These are the upper status, large land holding sector of the farming population

As land ownership is important, so is intergenerational transfer of land. For men, this is the major point of entrance into farming. For women, entrance is usually through marriage. The most preferred and most common pattern of intergenerational transfer is for a son to continue with the farm while other children receive a token share of the estate (Poiner, 1990). Voyce (1997) notes that this Australian tradition can place the family in a series of conflicting aims that may shift and change according to the life cycle of the family. These aims are:

1. To maintain the area of the farm intact and undivided
2. That the son who has worked for a long time on the farm should succeed
3. That provision should be made for daughters and other sons to receive an education and/or receive non farm assets and
4. That should the husband predecease the wife, then she should receive a life-estate and live in the family house undisturbed.

Voyce says these conflicting aims may result in two problems – the straight jacket problem and the buyout problem. A farm family may be in a 'straight-jacket' where the son is pressured into farming because the farm is a source of family identity. It is also a source of security and income for the retiring parents. The buy out problem is where the son has to purchase the farm from his parents and pay a reasonable price, forcing him to take on high levels of debt. Where the family farm has no son(s) who wish to take over the family farm,

the property is either sold, left to a daughter or left to the closest relative. None of these alternatives are attractive to parents.

The process of farm succession can be long and difficult. Sons often leave school early, undertake a trade and then return to the farm and work for the father. Gradually, as the son gains more experience in farming, he is handed more and more responsibility for the running of the farm. This may, however, take many decades, depending on the father's desire to retire. In the face of falling income, the father may postpone retirement (Stayner, 1997) and in many cases, sons do not obtain control until their father's death (Hutson, 1987). There can be significant conflict between son and father, and their respective partners, as each struggles for control and power over the management of the farm.

Intergenerational transfer can have a large impact on the farm business, yet preparation for this important event can be poor. Often the will is prepared with little or no consultation or communication with the other family members who are going to be affected by it (Gamble et al., 1995). Its failure to cater for the needs of the surviving family members can result in the sale of the property. Where it is well prepared and executed, farm succession provides an opportunity for major change on the farm. The presence, or likely presence of a successor, has the effect of providing an incentive for maintaining farm productivity and performance. Where a successor is absent, it is much more likely that the farm operations will be run to a minimum to provide simply for the needs of the surviving parents (Marsden, 1989).

The desire for land ownership and intergenerational transfer remains strong. It is likely that woolgrowers hold these desires as strongly, if not more so, than other Australian farmers. There is evidence, however, that the current generation does not feel 'obliged' to stay on the farm in the same way as the last generation did. Similarly, parents are more prepared to accept their children's decisions not to stay on the farm, with many encouraging their children not to pursue a future in agriculture.

The emphasis on intergenerational transfer by Australian farmers provides a long-term perspective for farm family business decision making. The landowner interested in passing his property on to his son(s) has a planning phase of decades, rather than years. His objective is to retain the farm in a viable form so it can be passed to the next generation. Short-term profits may be passed over in preference for long-term stability. Intergenerational transfer is also a major point of change in the farm family business. It is a time when decisions to expand, intensify, diversify or sell up are forced upon the family by virtue of the desire to maintain a viable business for the next generation.

The farm succession process also means that change takes generations. The younger successor is trained by his father in the ways of farming, and in the ideals and values that are associated with the farm family business. The lack of a need for educational qualifications to enter farming circumvents opportunities for the next generation to develop knowledge and skills outside the scope of the farm family. It may also mean that those best suited to succeeding in

farming are not being given an opportunity to do so, simply because of the significant cost of entry. On the other hand, the presence of a successor drives change within the family business, and the training provided by his father gives him an intimate knowledge and understanding of the farm business when he does take it over.

Farm family business behaviour

The purpose of this paper is to explore how the role of the sociological environment of the woolgrower influences technology adoption. To do this, the factors influencing technology adoption, which are also influenced by the sociological environment, need to be defined. For the purpose of this paper the factors considered are the farm family business goals, its labour-use, decision making, and the age, gender and education of people involved. Evidence on each topic is presented, and the implications for technology adoption discussed. Issues such as the nature of the technology being advocated and the manner in which it is advocated are recognised as having major impacts on technology adoption. These are discussed within the context of goals, labour use, decision making and human capital.

Goals of the farm family business

The discussions of the agrarian ideology and the desire for farm succession in the earlier sections demonstrate the values held by Australian farmers. While the majority of the farming population will hold most of these values, it is an individual's ranking of these values that will suggest how they will act. These value rankings are the criteria by which goals and objectives are selected. Goals can be defined as the tangible expression of objectives, where objectives are ends or states in which the individual desires to be, or things he wishes to accomplish (Gasson and Errington, 1993).

Objectives set the tone for decisions and actions. The extent to which these objectives shape an individual's behaviour is a function of

- constraints such as resources;
- the individual's perception of the situation;
- the individual's knowledge of the choices available;
- the individual's intellectual capacity to solve the problem;
- multiple competing or complementing goals; and
- cultural influences

In a farm family business, the goals of a number of family members need to be addressed. These goals may change over the course of the family life cycle and in response to events in the outside world. They may also be influenced by cultural norms, both of the broader society and of the farming community. The notion of what is 'good farming management', for example, may inhibit or support an individual's pursuit of particular farm goals. For example

a farm family may seek greater input from the female partner into decisions relating to farm management, but cultural norms of male pre-eminence in farming may prevent them from allowing the woman to represent the business at public forums.

The objectives of a farm family business are the interplay of the objectives of all its members. They are influenced by the nature of farming itself and by the features of a family business. The combination of family and work life in the one location makes it difficult to separate family needs and activities from those of farm work. The combination of ownership, management and manual labour in the same family can create confusion for individuals in allocating time to several roles. There is also potential for conflict where roles are allocated on the basis of seniority or gender. Also, the probability of succession influences decisions from quite an early stage in the family cycle (Gasson and Errington, 1993).

To better understand farm family behaviour then, not only do individual's goals and objectives need to be considered, but also the underlying values and the cultural norms of the communities in which they live. The following section explores the goals, values and cultural norms of individuals within farm families, and others who interact closely with the farm family business. It looks first at the goals of male farmers and a range of typologies that have been used to classify farmers according to their objectives. Evidence on farm women, and others in the farm family business, is also presented.

Farmers' goals

As discussed earlier, the primary aim of most family businesses is not to maximise profits but to maintain control and pass on a secure and sound business to the next generation. Objectives relating to the work itself, to economics, to independence and to personal status are intermingled with succession objectives. Empirical studies of farmers' goals in Australia (Craig and Philips, 1983; Gray, 1991), the US (Young, 1984) and the UK (Gasson, 1973; Perkin, 1992; Giles and Mills, 1971; Errington and Tranter, 1991) consistently identify three key goals in farming:

- 'being your own boss' or 'independence';
- 'making a reasonable living in the present'; and
- 'leading a healthy, open-air life' or 'working with animals'.

While all evidence points to farmers valuing independence Gasson and Errington (1993) point out that this means different things to different farmers. It may mean freedom from supervision, or from employees. It may mean freedom to make decisions, or to set the pace of work. In light of the apparently decreasing levels of autonomy Australian farmers now have, they still see themselves as independent operators. It may be that their perception of 'independence' is changing to accommodate their changed circumstances.

There is some evidence that goals vary according to the size of the business, with smaller firms in the UK emphasising independence and the nature of farm work and larger firms emphasising income generation and personal objectives (Gasson, 1974). A number of studies have investigated the effect of the farmer's age on objectives and values. The only consistent finding is that older farmers are more risk averse than younger ones (Perkin, 1992).

Farmer's goals have also been examined through typologies, where common characteristics are searched for among individuals who share similar objectives. A number of researchers have developed 'ideal types' from theory, observation or factor analysis. Examples from the US, New Zealand and Australia are discussed here.

Salamon and Davis-Brown (1986) looked at the role of objectives in farm decision making, especially objectives influenced by differences in ethnic origins in US farm families. They identified the yeoman farmers (emphasising farming as a way of life and having a German background) and contrasted these with the Yankee farmers (from a British background, emphasising entrepreneurship and profit seeking). The latter were more likely to seek growth in scale and less likely to support local communities.

A similar distinction described Australian farmers. Gamble et al. (1995) found one group of Australian farmers who saw the farm family business as a business that can be sold off like any other asset. The other group saw farming as a way of life. This influenced the way they approached intergenerational transfer. In the Australian wool industry, O'Keeffe and Fletcher used two criteria to distinguish between types of woolgrowers. The first was on the basis of the extent to which the farmer showed a business approach to farming (occupation versus business farmers), and the second was the extent to which family decision making processes were shared among family members (open versus traditional farmers).

In New Zealand, Fairweather and Keating (1990) used factor analysis to identify three management styles:

1. The **dedicated producer** thrives on farm work and achieving a high quality product via careful planning and financial management, contribution to the farm and being the best farmer he can. Production, work and development are the keys to success. These tended to be young, male and full-time farmers.
2. The **flexible strategist** is attuned to the wider context, chooses to act in response to her environment with understanding rather than fear. She emphasises effective marketing, pursues off-farm activities, seeks to reduce the workload and diversify assets. Careful marketing combined with a focus on the family and lifestyle are the keys to success. These tended to be older and female.
3. The **lifestyler** places high value on working with Nature. Environmental awareness, working with the family and sustaining the lifestyle are important. These tended to be older, more part-time and a higher proportion of horticulturists.

Many of these studies have used a single criterion to make arbitrary distinctions between types. Most commonly, the criterion distinguishes between profit and non-profit orientations, or adopters versus non-adopters. As such, the distinctions are the result of the method rather than an accurate reflection of farmers' management styles. For example, all farmers value family goals to some degree but give meaning to them in different ways. In Fairweather and Keating's (1990) types, the dedicated producer believes the family should be involved on the farm; the flexible strategist believes in enjoying off-farm pursuits with the family; and the lifestyler believes in the family working together to share and enjoy the lifestyle. These authors stressed that while one 'type' is often promoted as the successful farmer, many types can be successful. The difference is that they respond to forces for change in different ways, not that they respond inappropriately.

The main value in such typologies, then, is in understanding the diversity of approaches to farming. Research on adoption in the 1960s demonstrated that attributes of new practices were perceived differentially by different types of farmers. Recognition of diversity amongst farmers has been one of the major outcomes of Vanclay and colleagues work in Australia (Vanclay et al., 1998; Howden et al., 1998; Mesiti and Vanclay, 1996; Glyde and Vanclay, 1996). Working with Australian grain growers, Howden et al. (1998) asked farmers themselves to describe different styles of farming. Six major styles were identified, 17 minor styles and four poorly defined styles. Major styles included 'innovative' and 'traditional'. Minor styles included the 'expansionist', the 'old rich' and the 'grazing emphasis'. The researchers concluded that these styles were 'ideal types', but it was difficult to identify which farmers fell into which categories. It is possible that individuals adopt many styles, apply particular styles to particular circumstances and that an individual's styles change with time. The styles do, however, indicate what farmers' conceptions of 'good farm management' are, and offer opportunities for targeting adoption messages to different aspects of farmers' farming styles.

While there is a widely held view that 'traditional' farmers are less likely to adopt technologies than 'innovative' types, this appears to be less the case than it was in the past. Early adoption-diffusion research in the US by Wilkening (1950) showed that several 'socio-psychological' variables were associated with the acceptance of improved farm practices (attitudes to education, attitudes to religion, dependence on neighbourhood and kin ties). Traditional attitudinal orientations led to resistance to and a lack of readiness to change, such as change reflected in accepting and adopting new practices. Future researchers found substantial correlations between social-psychological/personality indexes and an index of adoption of new farm practices. More recently, however, Hooks et al. (1983) found very low associations between personality/social-psychological indicators and farm practice adoption. This suggests there has been a historical change in the basis of adoption behaviours (van Es, 1983) as technological change has become more routinised and institutionalised in today's farm family businesses.

Goals of other farm family business members

Until recently, the role of women in agriculture had not been a major focus of farm management, economic or sociological research. In the 1990s, however, there has been a significant increase in the knowledge of farm women's needs and activities. There has been little study, however, of the goals of other members of the farm family business. This extends not only to other family members – brothers, sisters and farm youth – but also to employees and other contributors to the farm operation. This section examines the goals of farm women and of farm couples, but not other members of the farm family business. This latter area requires further research.

Some of the original work on farm women looked at what they liked or disliked about farming, rather than their goals. This was usually examined from the point of view of their contribution to farm activities (Gasson, 1980a; Buchanan et al., 1982). Working farmwives, who worked manually as assistants to their husbands, liked the work itself and independence. They disliked specific farm tasks, problems in human relations and working in cold wet conditions. Women farmers, who ran farms alone or jointly with their husbands, liked farm work itself, independence and personal relationships with workers or the farming community. They disliked wet and cold conditions delaying farm work. Farm housewives, who did no manual farm work, enjoyed living in the countryside, bringing up children on a farm and being involved in the husband's business. They disliked mud in the house and being cut off by the snow.

Buchanan et al. (1982) found family concerns were more prominent for female than male farmers. The closer the working role of the wife to that of the husband, the more likely they seem to be to share the same likes and dislikes, suggesting agreed objectives. For working housewives, husbands being tied to the farm, working long and irregular hours were seen as a serious problem, arising out of the blurred boundaries between family and work and their impact on the family.

Studies of couples' goals show that most share similar objectives. Wilkening (1954) did a pioneer study of farm family relationships. They asked 170 Wisconsin farm operators and their spouses to respond to hypothetical situations involving a choice between farm and family goals. A high degree of consensus was found. On average husbands and wives agreed in two thirds of their responses. In some questions wives favoured family goals more than husbands did.

Wilkening and Bharadwaj (1966) asked nearly 500 Wisconsin farmers and their wives how they would use an unexpected windfall. Sixty per cent of couples agreed upon the order of priority, with least consensus about household expenditure. Husbands favoured farm improvements but both placed the family as the top priority (holidays, education, trips). Husbands who gave the family priority had higher incomes while the opposite was true for wives. This suggest farmers focus on family and household needs only when farm needs are

less urgent. For women, however, extra money is an opportunity to satisfy neglected family and household needs.

The importance of wives objectives for the farm business was shown in a study by Wilkening and Guerrero (1969). Adoption of improved farm practices was higher when both partners had high aspirations for the farm, than when only one had high aspirations. The hypothesis that adoption will be high if the husband's aspirations level is high but the wife's is low was generally not supported. For the average farm family, the wife's aspirations appear to be as crucial for the adoption of improved practices as the husbands. Although these results are from 30 years ago, they show how farm women can influence the activities of the farm family business.

The goals of the modern farm family business

The evidence presented paints a picture that supports the agrarian ideology. However, much of this information is dated. Farm men and farm women's goals are likely to have changed over time due to the changing nature of farming and of society. It is possible that the emphasis for male farmers is more on economics now than on lifestyle, and that farm women's goals are changing, and thus impacting on the farm family business in different ways. There is little evidence, however, to support these hypotheses, particularly the first one. There is also little information on the goals of other persons involved in farm family businesses, or on how the family deals with multiple and conflicting goals. While further investigation is needed on each of these topics, the original work cited here provides a framework for understanding the goals of the farm family business.

Implications for technology adoption

The dominant objective of farm succession means farm family businesses are focused on the long term and are risk averse. Decisions are made within this overriding framework. This means the family takes a conservative approach to change, considering the impact of change over the long term. The step of adoption of technology may be taken gradually to evaluate its potential contribution to the continuation of the farm business. Technologies that reduce risk may be more attractive than those that increase profits. Although farm family businesses are often negatively referred to as resistant to change, this can also provide a positive stimulus for the business. The desire for farm succession provides a stronger determination and commitment to the business than in non-family businesses, facilitating the introduction of new ideas, new approaches and new technology to ensure the survival of the business in the long term.

The desire for independence means that farmers seek to retain control over their own operations and are loathe to enter into arrangements that may reduce their autonomy. Such arrangements include government regulation of land management practices, machinery sharing, collective marketing, use of consultants, debt or contract production. On the other

hand, this desire for independence means they consider themselves as manager and technician, and seek to be intimately involved with decisions relating to both the management and day-to-day running of the farm. Their desire for independence ensures they take a 'hands-on' approach to the business.

The farmer's enjoyment of the activity of farming and the goal of continuing to enjoy this, has implications for technology adoption. Farmers take great pride in their work, whether it be their crops, their animals, or their machinery. Any new technology will be considered not only on its impact on farm survival and farmer independence, but also in terms of how it impacts on the farmer's interaction with his or her farm environment. A new technology may change the nature of the farm work and reduce or improve the farmers' enjoyment of the work activity. This is particularly evident in animal breeding, for example, where animal selection skills have been developed over generations and used with great pride. A woolgrower's reluctance to change from wool to cropping is in part due to the satisfaction they gain from working with livestock.

The differences in each farmers relative ranking of goals, as demonstrated in the variety of farmer typologies developed by researchers, also has implications for technology adoption. Every farmer is different, emphasising different aspects of the farm family business according to their own background and circumstances. These differences lead to differences in perceptions of technologies between farmers, and thus different patterns of adoption. For those presenting a particular technology, the challenge is to demonstrate a number of benefits, rather than simply economic benefits. This will ensure that those focussing on labour reduction, independence, or long term benefits will have the opportunity to consider the value of the particular technology for their circumstances. Caution must be taken, however, against categorising farmers too specifically as one type or another and using this as an excuse for not dealing with those whose goals do not appear to align with those of the technology advocator.

The evidence presented relating to the importance of farm women's goals in technology adoption demonstrates the need to involve women in this process. Women should not be considered as a separate target group but rather as a part of the farm family business. The difference in men and women's goals (family versus farm) highlights the need to recognise that not only do individuals have multiple objectives, but families must also deal with many individuals with multiple objectives. Efforts at technology adoption can seek ways to improve the chances of a new technology being considered by all members of the farm family, rather than an individual, so that the impact of the technology on the whole family can be considered.

Labour use in the family farm business

In the ideal definition of the farm family business, the family supplies most of the labour. This means family members are the people who once it is decided to adopt a new technology, are responsible for its implementation. A knowledge of who is undertaking particular activities

can inform technology adoption efforts. The agrarian ideology supports the division of labour on the basis of age and gender. This is reflected in labour use on Australian farms and is examined in this section. In general, men undertake the physical and management activities and women undertake the home activities. Increasingly, women are taking a greater role on the farm, and both farm men and women are taking off-farm employment. In addition, contractors are being recruited at peak labour demand times or for tasks requiring specialist skills or equipment.

Farm men are responsible for the majority of the farming activities, particularly farm management tasks. The main difficulty for farmers in their day-to-day work is the conflict between being a manager and being a technician. Part of the agrarian ideology is the commitment to the work ethic where physical labour is valued more highly than mental activity. This is reflected in farmers allocating more time to physical activities than to management. In some cases the management tasks may be relegated to evening work when the farmer is physically exhausted after a difficult day's work. While research indicates that technical activities are of critical importance in managing the risk associated with farming, business management is increasingly promoted as the determinant of 'economic' success. The conflict between the roles of 'technician' and 'manager' creates difficulties for the farmer.

As demonstrated in the discussion on farm women's goals, women vary in the degree to which they are involved in the farm business. All of the women discussed are involved in the family activities but they vary in the extent to which they are involved in farm tasks. Alston (1997) reports that farm women in Australia are routinely involved in livestock tasks, the transport of equipment, food and messages, conflict mediation and the management of input from outside services and personnel. As farm incomes fall, women are being drawn back into areas of farm work, replacing hired labour on their farms or working off-farm.

While family labour is being drawn back into the farm, it is also being used to obtain off-farm income to help support the demands of the farm and the family. Who seeks off-farm employment is influenced by the number of young children, the availability and type of off-farm work, the amount of farm work to be done and who is best able to do it (Alston, 1997). Husbands work off-farm when the farm is less developed and their off-farm earnings will be higher (Rosenfeld, 1985). When men work off-farm, women take on more farming responsibility. Lack of employment opportunities and domestic support mean that often women seeking off-farm work take jobs for which they are over-qualified or poorly paid.

The average income from on-farm and off-farm sources for owner manager families in broadacre farming was an estimated $26,800 in 1994-95 (Gaurnat and Lim-Applegate, 1998). Only around $9,900 of this was from the farm business (37%). Most of the income came from wages and salaries (59%), followed by investment and other business income (28%) and government social support payments (19%). Almost 40% of families earned off-farm wages and salaries and 45% received social support payments, averaging $5100 per family. It should

be noted, however, that many businesses were affected by drought in that year and 37% of farm businesses had a farm business loss.

The changing supply and inconsistent demand for labour in the farming operation, makes it difficult for the farm family to match supply with demand. To accommodate for peak periods of labour demand, or for specialist tasks, farmers are increasing their use of specialist labourers and contractors. Shearers are the classic contractor in the wool industry, but others include the sheep classer, the wool classer, the contract seeder, the fencing contractor, the lamb marker, the super spreader, the mulesing contractor, the drenching contractor, the wool broker and the veterinarian. Indeed many farmers may themselves act as a contractor to bring in off-farm income and even out periods of labour oversupply. Such contractors impact significantly on the operations of the farm, whether through the breeding program, internal parasite control or pasture establishment.

Implications for technology adoption

As the family is the major supplier of labour to the farm business, it should be the focus of technology adoption activities requiring skill development. Technologies should be directed at those who are using them, not just at the perceived manager of the farm family business. In particular, contract labour employed by farmers should be targeted. With the farm family's role becoming increasingly one of coordinating contract labour, emphasis should also be placed on developing the human resource management skills of farm family members.

The increase in the role of farm labour during difficult economic times and the increased level of off-farm employment, demonstrate the range of strategies farm families have for coping with change. These strategies can improve the performance of the farm family business without requiring technology adoption and the subsequent change to farm management practices. Advocates of technology adoption, then, should see technology as one of a range of strategies available for improving farm family business performance, rather than the panacea for all farm problems.

Decision making in the farm family business

There has been much research on the outcomes of farmer decision making and on their sources of information. In particular, research has focused on whether or not farmers have decided to adopt or reject a particular technology and the reasons they give for this decision. The decision process can be considered as having three steps:

1. Decision making, where information about the alternative courses of action and their possible consequences is gathered from external sources (e.g., publications, other people) and internal sources (the knowledge and experience of the person involve) for the purpose of making a judgement
2. Decision taking, is when this judgement is taken and
3. Decision implementing, is when the decision is implemented (Errington, 1986).

Apart from some general information of farm men and women, there is little research evidence on the process by which decisions are made and who takes these decisions. Nevertheless, understanding the process of decision making is critical for those attempting to foster technology adoption as it identifies the appropriate target for the information about the particular technology. It may be that the decision taker is not always the senior male farmer, as so commonly assumed. Decisions may be taken by other family members, or by persons off the farm. These people may have different goals to the male farmer, which may in turn influence their response to technology adoption.

Different people both within and outside the farm family may take each of these different steps. All members, for example, may play a part in gathering information during decision making. The senior male farmer may actually 'take' the decision, and responsibility for its implementation may be delegated to the succeeding son.

One of the reasons for there being little evidence on decision taking is the difficulty in directly observing this intellectual activity. There is, however, some evidence on decision making, particularly on the influence of external sources of information. Research evidence suggests that farmers nominate other farmers as a major source of information for farm decision making (Kerby, 1994). Agricultural advisers and consultants are also important sources of information, as are the rural press and sales representatives. However many of these studies have been so general in their questioning that the responses tend to be based on a generalisation across the subject's view of the types of decisions the researcher is asking about.

When farmers are asked specifically about decisions that have recently made, the role of other farmers is less significant. Both Phillips (1985) and Fulton and Clark (1996) took this approach in their examination of the decision making processes of New Zealand dairy farmers and Tasmanian potato farmers respectively. The results demonstrated that who is used as a source of information is very much determined by the particular issue in question and often other farmers are not consulted at all. There is little evidence, however, on how farmers use the information from each particular source. There is even less known on sources of information used by other members of the farm family business.

With respect to decision taking, male farmers have been found to take most of the responsibility for farm decision making, with farm women taking the responsibility for household decisions. Craig's (1983) survey of grain growers in South Australia found that more than half of the couples reported joint discussion of decisions (decision making). It did not discuss, however, who was responsible for decision taking, and the relative importance of each person's views. Other research findings from the UK and Australia demonstrate that men are dominant in terms of decision making power (Gasson, 1980; James, 1989).

Where women are more involved in farm work, they are more likely to participate in decision making (Wilkening and Bharadway, 1967). While a contribution to labour is required for women to have an input into farm decisions, not all women who work on the farm have input into the decision process (Boulding, 1980; Rosenfeld, 1985). Farm women may be involved in joint decisions but rarely make decisions alone (Alston, 1993). Those most involved tend to be those where the couple started farming after their marriage (Gasson, 1980). Marrying into an existing business with existing decision making structures excludes the women (Alston, 1997). Women generally have a lower involvement in decision making on larger and smaller farms (Sawer, 1973; Rosenfeld, 1985).

Decisions are not only shared between the farm couple but also with other members of the family. The succeeding son and his father, for example, have different responsibilities for particular decisions at different stages in the succession apprenticeship. Figure 2 shows the results of Errington and Tranter's (1991) examination of the transfer of managerial control on 250 farms where there was an identified successor aged 16 or more already actively involved in the business. The decisions most commonly delegated to the son concerned work methods, the type and make of machines and equipment to be bought, the supervision of staff and the type and level of inputs. Decisions least likely to be delegated all involve financial transactions such as negotiating loans and finance or deciding when to pay bills or sell produce.

The work of Errington and colleagues in the UK (Errington, 1984; Errington and Tranter, 1992) has provided a clearer understanding of the role of family members and agricultural advisers in farm decision taking. The latter have been demonstrated to have an increasing role in farm decision taking, being delegated responsibility for many day-to-day farm decisions. In Tasmania, Fulton and Clark (1996) demonstrated the high level of delegation of decisions to off-farm service providers by vegetable growers. It is likely that this is also occurring in the Australian wool industry with both contractors and advisers being given responsibility not only in decision making, but in decision taking. Further research is needed to elucidate the extent to which decisions are being delegated to stock agents, shearers, wool classers, consultants, sheep classers, wool brokers, accountants, bank managers, financial advisers and merchandise representatives.

Figure 2 The succession ladder: The average age by which particular decisions are delegated to the succeeding son

Age	Decision
Never	Decide when to pay bills
Over 40	Decide and plan capital projects
	Identify sources and negotiate loans and finance
40	Negotiate sales of crops and stock
35	Decide when to sell crops and stock
	Negotiate purchases of equipment
	Decide when to take on additional staff
	Recruit and select staff
30	Plan day-to-day work
	Make annual stock/crop plans
	Decide long-term balance and type of enterprises
	Decide timing of activities
	Decide type and make of equipment
	Decide amount and quality of work expected
	Decide work methods/way jobs are done
25	Supervise staff at work
	Decide level of inputs
Start here	

Source: Errington and Tranter, 1991:121

Implications for technology adoption

The evidence presented highlights the need for a detailed understanding of the decision process for particular technologies. This will vary according to the nature of the technology, the sources of information for decision making, the person(s) responsible for decision taking and for decision implementation. Each decision maker, taker or implementer will use different sources of information and networks to inform their activity. Advocators of technologies can use these existing information channels or networks to direct their messages to the appropriate audience. These may be specialist publications, industry bodies such as the Australian Veterinary Association, or particular individuals, such as the local sheep classer. Emphasis also needs to be placed on developing the decision process skills of all of the people involved in the farm family business.

Human capital in the farm family business

Human capital is considered here as the nature of the human resource in the farm family business. The education, experience, intellectual capacity and age of farm family business members influences their technology adoption behaviour. Earlier discussion has shown how older farmers are more risk averse than younger farmers. In the Australian broadacre and

dairy industries, owner-managers average 52 years in age. People in owner manager households were older, on average, than the rest of the Australian population in 1994-95 (Garnaut and Lim-Applegate, 1998). This does not necessarily mean there are no younger farmers coming on, rather that the senior generation has effective managerial and ownership control. The younger generation could still be playing an active and influential role, but its appears retirement is being postponed because of falling income, inhibiting the promotion of the younger generation to full managerial control (Stayner, 1997). This, combined with the assets test on aged pensions, has reduced the senior generation's ability to retire.

Research in Australia has also shown a correlation between levels of formal and informal education and farm profitability (Kilpatrick, 1996). Compared with all Australian farmers, a greater proportion of woolgrowers have a tertiary education or equivalent. Overall, however, farmers are less educated than the general population with 18% of males 15-64 years of age having some form of postschool education in 1994-95 compared with 44% Australian wide (Garnaut and Lim-Applegate, 1998).

Historically, farmers' sons have been encouraged to leave school and work on the farm as soon as possible, or pursue a machinery based trade. One of the most pervasive disincentives for pursuing tertiary education is the relatively low value placed of the need for education compared to experience. As noted earlier, education is not a prerequisite for entry into farming. The emphasis on farm succession, independence, working hard and on the enjoyment of the farming activity means that experience is highly valued as a means of preparing a new entry for farm ownership. Also, ownership of land provides a level of status in the community that is equivalent to that associated with high levels of education.

Education is also expensive in terms of both cost and time. Farming enterprises are often isolated from educational centres, creating additional costs for travel and board for children at school or university. Sending children away to school or University also removes them as potential sources of part-time labour for the farm. Where post-secondary education is supported, parents often encourage sons to gain a trade. This provides useful skills for farming and a fall-back position if the sons don't enter farming.

Participation in informal training is also difficult, partly due to isolation and cost. The reliance on family labour for the operation of the farm also creates problems. In times of economic hardship, participation in training is an opportunity cost for the farm business. With families providing 85% of farm labour, the farm may be left with virtually no labour when one or more staff leave the property to undertake education or training. As farm succession occurs through the male line, daughters are often encouraged to gain an education to ensure they can provide for themselves. Farm women are often more highly educated than farm men, with 19 per cent of spouses having completed tertiary education in 1994-95 compared with 10% of owner managers (Garnaut and Lim-Applegate, 1998).

While education is promoted as a key to success in farming, there is no doubt that experience places young farmers in good stead for managing the farm family business. There is some evidence that farmers with higher levels of education are more likely to leave the industry in times of hardship (Stayner, 1997). Some reasons may be greater potential for employment elsewhere; more time to reap returns on further investment in education, retraining and relocation; their partners are employable, rising lifestyle expectations and income demands of younger family members.

Hard times impact on the occupational desires of farm family members. Low incomes, isolation, hard work and a declining public image makes agriculture less attractive to young people considering taking on the family farm. With greater access to the outside world through media and electronic communications, young people are more aware of the alternatives than they used to be. Farm women and the media play a critical role in encouraging or discouraging children from entering farming. Anecdotal evidence suggests that many Australian farm family businesses are less in favour of their offspring continuing on the family tradition than they may have been in the past. At the same time, however, many farmers are disappointed when their children choose not to come home (Campbell, 1980).

Implications for technology adoption

The average age of the woolgrowers has implications for technology adoption, particularly where no successor is identified for the future of the farm business. These farm family businesses are less likely to be seeking technologies for improving farm productivity and profitability. Their preference will be for technologies that reduce work load and reduce risk. Where a successor is identified, the succession apprenticeship is being extended so that the delegation of responsibility for major decisions is being delayed. In such cases the role of the senior male should be recognised as being pivotal in technology adoption.

Technology adoption efforts need to recognise the importance of experience, rather than education, to the farm family business. New technologies can be presented in a way that refers to past experience, develops skills (or current experience) and talks about future expected experiences. A key to this may be through the use of reports or demonstration of the experiences of other farmers. Where informal training or educational approaches are used, these need to overcome the disincentives of cost, time and opportunity cost. Formal education also needs to address these issues and coordinate its effort with the informal and vocational training sectors.

To obtain maximum benefit from farm families' participation in educational activities, proponents of technology adoption can ensure that their technology is incorporated as part of the current knowledge base conveyed to students. At the same time, the foundation knowledge may need to be 're-run' as many students will come to formal education with preconceived ideas based on their experience.

The farm family business needs a range of skills among family members and off-farm service providers. Education and training providers could increase their impact in agriculture by seeking to address the needs of all members of the farm family business, rather than just the male farmer(s). This need extends beyond the farm family to employees, contractors and consultants.

Conclusion

Farm family business behaviour is a function of its makeup, its environment and the individuals within it. The nature of farming, of families and of the economic and political climate for agriculture mean that farm family businesses are dynamic, undergoing constant change. Some of these changes are driven from within the family, some from without. Farm family business behaviour can be understood through consideration of the sociological environment in which they are operating. A detailed knowledge of farm family business goals, decision making, labour use and human capital, and the factors that influence these is useful for informing approaches to technology adoption.

Based on the information presented in this paper, a number of recommendations can be made for the Australian wool industry's technology adoption efforts:

Work with the right people

Target technology adoption efforts towards the appropriate member(s) of the farm family business, whether they be making, taking or implementing decisions. This targeting should extend to the farm family businesses' associated providers of labour, advice and information. The appropriate persons may differ according to what specific technology is being advocated.

Understand the needs of the people you are working with

Ensure the technologies are developed so they are relevant to the needs of the target audience. Develop messages that address the range of needs, goals, attitudes and resources that farm family businesses may have. Undertake continual evaluation of the response to messages and technologies and use this to redirect technology adoption efforts.

Make the technology accessible to farm family businesses

Present the technology, education or training in a way that reduces the disincentives for participation. Seek to use existing farm family business networks (such as shearers, wool classers, consultants etc.) before establishing new communication channels.

Develop everyone's human capital

Focus on developing the capacity of all members of the farm family business, including outside service providers.

Many of these recommendations can be implemented without a need for further research into the wool industry's farm family businesses. Specific programs, however, will need to obtain information specific to their objectives. Data collection and program development should be considered a major and mandatory phase of any technology adoption program.

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Paper 2:

Fostering women's participation in on-farm programs

Fulton, A. and McGowan, C. (2005) *Fostering women's participation in on-farm programs.* Report Number: HC.009. Sydney: Meat and Livestock Australia.

This report was co-authored with Cathy McGowan, of Catherine McGowan Consulting. Cathy contributed to the project design, data collection, recommendations and the editing of the final report. Cathy also brought her wealth of knowledge and experience in working with farm women to the project. My role was also in project design, data collection and editing, with the additional role of undertaking the literature review, analyzing the data and writing the final report.

The purpose of this report was to identify the extension needs of women in meat production businesses, and to explore the extent to which these needs were being met by the existing programmes of Meat and Livestock Australia (MLA), the meat industry's Research and Development Corporation. The need for such a review was identified by the then manager of the MLA Edge Network programme, Neale Price, who saw the opportunity for increasing the participation of women in MLA's on-farm programmes.

This paper is placed second in this thesis because it builds on the understanding of family farm business in Australia by looking particularly at the role of women on farms. It demonstrates the critical role of women in the majority of farming businesses. It also introduces some examples of Australian extension programmes and evaluates the extent to which these address the needs of farm women.

The project budget for this particular research project was constrained thus limiting the ability to gather primary data on women's needs. However, it does explore a body of secondary data addressing these issues. It also gathered limited primary data on the extent to which women's needs were being addressed. From MLA's perspective, the paper played an important role in shifting the emphasis from the male farmer to the family farm business, and in acknowledging the important role of women in the family farm business.

Paper 2 has been removed for copyright or proprietary reasons.

It has been published as: Fulton, A., McGowan, C., 2005. Fostering women's participation in on-farm programs. Report Number: HC.009. Sydney: Meat and Livestock Australia.

Paper 3:

Farmer decision making under contract farming in northern Tasmania

Fulton, A. and Clark, R. (1996) "Farmer decision making under contract farming in northern Tasmania". Chapter 12 in: Burch, D., Rickson, R. E., and Lawrence, G. (Eds) *Globalisation and agri-food restructuring. Perspectives from the Australasia region.* Aldershot: Avebury, pp. 219-238.

This book chapter was co-authored with Prof Rob Clark of the Tasmanian Institute of Agricultural Research, my PhD supervisor at the time. It was based on the initial results of my PhD research exploring farmer decision making in the Tasmanian potato industry. Prof Clark gave overall direction and provided feedback on the design of the research project and the editing of the chapter. My role was in project design, reviewing the literature, designing the data collection instruments, data collection, data analysis and writing the chapter.

The purpose of this research was to explore the role of agribusiness firms, agricultural consultants and financial institutions in family farm business decision making within the Tasmanian potato industry. Initial focus groups undertaken as part of my PhD had shown that a wide range of players were influencing farm decision making with respect to crop protection, particularly contracting company field officers and agronomic input suppliers. Interviews with case study farmers confirmed this, demonstrating that the role of the male farmer in decision making is contextual, depending on the type of decision being made and the influence of other players in the decision.

This paper is placed third in the series because it builds on the understanding of family farm businesses in Australia by looking at the specific decision making processes on farms. It demonstrates the critical role of farm men as the gateway for *tactical* decisions, whereas both farm men and women contribute to *strategic* decisions. Farm men, however, were not found to be the controller of all tactical decisions. In the complex contracting environment, many decisions were made by others – sometimes through delegation of responsibility by the male farmer to the crop protection adviser, for example. In other cases, the decision control was handed to the contracting company at the time of the signing of the contract. This was particularly the case for decisions such as the timing of harvest, the size of the crop, and the variety to be grown. While in some cases farmers effectively lost (or gave away) control of their tactical decision making, in most cases the farmers were able to respond to external influencers by working collaboratively with those influencers, or by ignoring them altogether. Overall, the nature of decision making by family farm business members was found to be shifting from technical production decisions to decisions around the management of complex relationships with external advisers. This necessitates a greater focus on the family farm business as the centre of management decision making, and an acknowledgement of the role of external advisers in the wide range of tactical decisions on farm.

Paper 3 has been removed for copyright or proprietary reasons.

It has been published as: Fulton, A., Clark, R., 1996. Farmer decision making under contract farming in northern Tasmania. Chapter 12 in: Burch, D., Rickson, R. E., Lawrence, G. (Eds) Globalisation and agri-food restructuring. Perspectives from the Australasia region. Aldershot: Avebury, pp. 219-238

Paper 4:

Accelerating diversification in the Northern Midlands and Fingal Valley

Fulton, A. and Weatherley, J. (2000) *Accelerating diversification in the Northern Midlands and Fingal Valley*. Report to the Tasmanian Department of Primary Industry, Water and Environment. Hobart: Tasmanian Institute of Agricultural Research, University of Tasmania.

This report was co-authored with Jane Weatherley, who was employed by me as a Graduate Research Assistant. My role was as Principal Investigator. I played the lead role in project design, conducting the literature review, developing data collection tools, undertaking stakeholder consultation and reporting, data analysis, development of recommendations, and finalising the writing of the final report. Jane's role was to assist with the literature review, organize focus groups, collate data from the focus groups and prepare sections of the final report.

The report was part of a series of scientific and social studies exploring opportunities for on-farm diversification in the Northern Midlands of Tasmania, as part of a national drought recovery project. It specifically aimed to inform the development of strategies for overcoming barriers to diversification. It considered some of the socio-economic factors that influence agricultural enterprise diversification, and in particular, the issues that are important for the Northern Midlands and Fingal Valley.

This publication is placed fourth in the series because it builds on the understanding of the family farm business in Australia by looking at major management decisions such as diversification. The research found that there were many social and economic barriers to diversification. Three of the major factors were lack of access to water, a lack of access to finance and a desire to continue to focus on wool production. Drivers for diversification included the already high level of cropping in the region, demand for land by contracting firms, poor returns from livestock enterprises, and a desire among farmers to remain in farming. For each of the family farm businesses involved in the study, the combination of their stage in the family life cycle, their experience or lack thereof in new enterprises and their current level of skill and expertise in their existing enterprises were major influences on their attitude to diversification. In most cases, farmers did not accept there was a 'need' to diversify. The research showed that for major diversification to occur in the region, a wide range of organisations would need to operate in concert over a long period of time to create confidence in diversification among family farm businesses.

Accelerating diversification in the Northern Midlands and Fingal Valley

A report for the Department of Primary Industry, Water and Environment

by Amabel Fulton and Jane Weatherley
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March 2000

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Foreword

The successful introduction or development of enterprises in agricultural regions contributes greatly to the economic, social and environmental sustainability of rural areas. The process of enterprise introduction or development, however, is not straightforward. Many factors – social, technical, political and economic – contribute to success or failure.

This report considers some of the socio-economic factors that influence agricultural enterprise diversification, and in particular, the issues that are important for the Northern Midlands and Fingal Valley. It reviews the research on agricultural diversification and reports on case studies of agricultural diversification in other parts of Tasmania. It evaluates the preparedness of the Northern Midlands and Fingal Valley for increased agricultural diversification, and the constraints to such diversification proceeding. It concludes by recommending strategies for accelerating diversification in these two municipalities.

The project results demonstrate that many of the pre-conditions for agricultural diversification are present in the Northern Midlands and Fingal Valley. While there are a number of constraints to agricultural diversification, there are also a number of drivers for change. The report concludes by highlighting the role that different stakeholders can play in accelerating agricultural diversification in the region. It is suggested that local governments facilitate rural development groups to lead this process, supported by the state government, agribusiness, farmer organisations and service providers.

This report forms part of the Tasmanian Institute of Agricultural Research's rural social research program. This program aims to support state development through social science research on agricultural and rural issues. The research reported here was undertaken as part of the Tasmanian Drought Regional Initiative (TDRI), a project managed by the Department of Primary Industry, Water and Environment (DPIWE). The TDRI aims to increase drought preparedness in the region of Tasmania through the adoption of risk management strategies based on the integration of efficient and sustainable water use into farm production. Other studies for TDRI have examined the water and soil resources in the regions, and the alternative enterprise options available to farmers.

For further information on the Tasmanian Institute of Agricultural Research, contact the authors of this report or visit our website:

- http://www.tiar.tas.edu.au

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The authors thank focus group participants and interviewees for their time, and their contributions to the discussions on agricultural diversification. This report is based on the information provided by these people. Thanks also to the project steering committee for its input and feedback and to Stuart Auckland for his enthusiasm for this work. Thanks to David Armstrong and John Maynard for their collaboration throughout this project, and to Rob Clark and David Fulton for input into project design.

Abbreviations

ABS	Australian Bureau of Statistics
DPIWE	Department of Primary Industry, Water and Environment
TDRI	Tasmanian Drought Regional Initiative
TIAR	Tasmanian Institute of Agricultural Research

About the authors

Amabel Fulton is a Rural Sociologist and Lecturer in Extension with the Tasmanian Institute of Agricultural Research. Based at the Hobart campus of the University of Tasmania, her role is teaching, consulting and research in extension and the social aspects of agriculture. She has seven years experience in rural social research and the implementation of agricultural extension projects. Five years experience prior to this as a rural reporter provided her with a broad knowledge of communication, agricultural production and political systems. Her research interests include farmer involvement in research; relationships between agribusiness and farmers; farmer decision making; and agricultural education.

Jane Weatherley is a Graduate Research Assistant in rural sociology with the Tasmanian Institute of Agricultural Research. She has a Bachelor of Applied Science (Agriculture) and has worked as a research assistant in projects in ostrich nutrition, evaluation of extension and education programs and worm control in dairy calves. Her research interest is strategies for optimising adoption of research findings in agriculture.

Contents

9. Appendices

Executive Summary

A study was undertaken to develop strategies for overcoming barriers to agricultural enterprise diversification and in the Northern Midlands and Fingal Valley. This report considers some of the socio-economic factors that influence agricultural enterprise diversification, and in particular, the issues that are important for the Northern Midlands and Fingal Valley. These included the possible path of diversification and constraints to diversification. It then reports on possible strategies for accelerating diversification. It concludes by outlining a range of stakeholders in progressing these strategies.

The findings demonstrate there are many social and economic barriers to diversification in the Northern Midlands and Fingal Valley. Three of the major factors are lack of access to water, a lack of access to finance and a desire to continue to focus on wool production. Supporters for diversification include the already high level of cropping in the region, demand for land by contracting firms, poor returns from livestock enterprises, and a desire among farmers to remain in farming. A wide range of drivers and supporters for change exist, plus strategies for accelerating diversification. Some can be implemented easily and in the short term, but most require a medium to long term effort and as such, as high level of commitment from stakeholders.

The report highlights the role that different stakeholders can play in accelerating agricultural diversification in the region. It is suggested that local governments facilitate rural development groups to lead this process, supported by the state government, agribusiness, farmer organisations and service providers. The role of local governments would be to harness the energies of these stakeholders in pursing rural development within the regions. The keys to the success of this approach will be a commitment to regional development from the state and federal governments, strong leadership from local government, and above all, a desire by the local farming communities to pursue change.

The detailed strategies for each stakeholder group are listed below. The potential for each strategy to accelerate diversification in the region is evaluated as high – H, moderate – M or low – L. The probability that it could be achieved is measured in the same terms: high – h, moderate – m and low – l. The strategy's potential to provide short term (one year - 1), medium term (two to five years - 3) or long term benefits (more than five years – 5+) is assessed. Strategies are listed in rank order for each stakeholder group.

Individual farm families

- Seek opportunities to tap into existing networks that will provide up-to-date information on relevant issues (Hh1)
- Consider the appropriateness of diversification for individual properties. This may be done without assistance, with the support of a consultant or through group forums (Hm3)
- Foster good relationships with contracting firms, supporting open and frank discussion (Hm3)
- Consider options for leasing or share-cropping some land (Hm3)
- Develop the skills of family members and employees that will support diversification. For example the farm women may seek to develop skills to use the internet to gain access to

information, the junior male may seek to develop skills in crop management, the senior male may develop skills in negotiating with contracting firms or evaluating soil capability (Hm5)

Farmer groups

- Develop a diversification group to pursue opportunities for the region(s) (Hh1)
- Identify the costs and benefits of diversification (Hh1)
- Have a united front for dealing with contracting firms (Hm1)
- Develop networks for joint selling and technical support (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Encourage the purchase of the essential oil stihl (Hm1)
- Develop incentives for contracting firms to work in the region (Hm3)
- Increase the facilities to support new industries (e.g., grain store for canola, essential oils processing plant in Northern Midlands, storing, packing, cooling for fresh vegetables) (Hm3)
- Pursue alternative sources of finance from private and public investors outside the region for new crop development (Hl3)
- Develop a vision to take to the agribusiness firms (Hl3)
- Explore opportunities for pasture seed production in the region (Hl3)
- Encourage leasing as a way of reducing risk in crop production (Mm3)
- Form active grower-driven discussion groups to help identify & develop new enterprises within the region (Mm5+)
- Form "partnerships" with firms to develop new crops and technology (Mm5+)
- Implement farm hygiene policies to protect region from new weeds and diseases (Ml5+)

Agricultural consultants

- Provide high levels of support for farmers considering diversification (Hh1)
- Provide strategies for improving wool profitability (Hh1)
- Provide specialist advice to service providers as well as farmers (for example machinery contractors, local government) (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Encourage leasing as a way of reducing risk in crop production (Mm3)

Non-contracting firm agribusinesses

- Encourage consideration of options for diversification (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Explore opportunities for pasture seed production in the region (Hl3)

Contracting firms

- Improve communication between companies and field officers to minimise conflict between crops (e.g., brassica seeds and canola) (Hm1)
- Assist farmers in managing diversification (Hm3)
- Work with other firms to collectively offer a rotation package to farmers (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Communicate with other firms openly (Hl1)

- Implement farm hygiene policies to protect region from new weeds and diseases (Ml5+)

Machinery contractors and farmers leasing land

- Further develop skills in crop production (Hm5)
- Develop codes of conduct for contracting and leasing (Ml3)
- Implement farm hygiene policies to protect region from new weeds and diseases (Ml5+)

State government – Department of Primary Industries, Water and Environment

- Develop an information package on the best diversification options (Hh1)
- Provide clear advice on government water policy (Hh1)
- Provide up-to-date information on the outlook of existing enterprises (e.g., wool) (Hh1)
- Use existing networks for promoting diversification. Incorporate information about diversification into existing communication channels and training activities (Hh1)
- Coordinate information and support for agribusiness, such as provision of long term weather records, improving communication between companies and field officers to minimise conflict between crops (e.g., brassica seeds and canola) (Hm1), encouraging the contracting firms to assist farmers in managing diversification (Hm3), encouraging firms interested in developing the region to collectively offer a rotation package to farmers (Hm3), support open communication between contracting firms (Hl1), implement crop record keeping to provide baseline data for contracting firms (Ml5+)
- Identify ways of improving the availability and reliability of water for irrigation purposes (Hh3)
- Identify the costs and benefits of diversification (Hm1)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Provide the latest information on crop production and sustainability to all information and training providers (Hm3)
- Provide agronomic and sustainable management support for new crops (Hm3)
- Develop a State Game Management Plan (Hl5)
- Develop and implement flood management strategies for the Fingal Valley (Hl5+)
- Facilitate registration of chemicals for speciality crops (Ml3)

State government – Department of State Development

- Provide market access support for possum meat (Hm3)
- Provide support for increasing the facilities to support new industries (e.g., grain store for canola, essential oils processing plant in Northern Midlands, storing, packing, cooling for fresh vegetables) (Hm3)
- Openly and vocally support agricultural diversification and rural development
- Provide business planning and market development support for canola (Hm5)
- Develop entrepreneurial skills of farmers and agribusiness, particularly in marketing (Hm5+)
- Provide financial support for demonstration crops (Hl3)
- Develop a deferred payment loan scheme to provide up front funds for farmers to invest in long term ventures (Ml1)

Local government

- Facilitate the development of diversification group(s) for the region(s) (Hh1)
- Seek funding to facilitate diversification projects in the Northern Midlands and Fingal Valley (e.g., Rural Plan, Natural Heritage Trust, Rural Industries Research and Development Corporation) (Hm3)
- Encourage the purchase of the Longford essential oil stihl (Hm1)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Develop incentives for contracting firms to work in the region (Hm3)
- Secure the water resources (Hm3)
- Provide support for increasing the facilities to support new industries (e.g., grain store for canola, essential oils processing plant in Northern Midlands, storing, packing, cooling for fresh vegetables) (Hm3)
- Develop and implement flood management strategies for the Fingal Valley (Hl5+)
- Develop a casual labour register (Mm1)
- Obtain local government support for new industries (e.g., farm forestry) (Mm3)
- Develop a community vision for the regions (Mm5+)
- Develop a deferred payment loan scheme to provide up front funds for farmers to invest in long term ventures (Ml1)
- Provide support for on-farm water storage (Ml3)

Training providers

- Provide support for farmers leasing other people's land (Hm1)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Deliver training and information to all members of the farm family, as close to the farm as possible (Mm3)
- Provide basic cropping information and education to farmers (Mh1)
- Provide incentives for farm labour to participate in training (Mm1)
- Develop farmer skills in assessment of their land resources (Mm3)

Research providers

- Provide the latest information on crop production and sustainability to all information and training providers (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Research crop production in the area (Mh3)
- Investigate possible crops from other parts of the world (Mh5+)
- Encourage farmer participation in research (Mm1)
- Explore commercial and environmental opportunities arising from fencing off and managing existing vegetation (Mm5)

TFGA

- Lobby to secure the water resources (Hm3)
- Know where to direct farmers for information (Mm3)
- Support woolgrowers in coping with change (Mm3)
- Encourage sustainable management (Hm5)

Financiers

- Provide support for farmers leasing other people's land (Hm1)
- Provide support for increasing the facilities to support new industries (e.g., grain store for canola, essential oils processing plant in Northern Midlands, storing, packing, cooling for fresh vegetables) (Hm3)
- Understand the issues facing farmers (Hm3)
- Understand the costs and benefits of diversification (Hm3)
- Support the implementation of risk management strategies on farms (Hm3)

To obtain greatest benefit from this report, it is suggested that a wide range of stakeholders are brought together to review the barriers and supporters for diversification in the region. These should be evaluated against agreed criteria. Individuals and teams could then be formed to further develop plans for implementing the highest priority strategies. These teams could report to an overall steering committee that is established to further this project over the long term. This approach of a co-ordinated community approach to diversification in the region is supported by evidence from similar efforts in other countries.

1. Introduction

Australian agriculture and its associated rural communities have suffered greatly over the last 20 years. Difficult climatic conditions, combined with declining terms of trade, withdrawal of services from rural regions and a major downturn in the Australian wool industry have put great pressure on farmers and farming communities. Many rural areas, however, have survived. Some have thrived. One of the contributors to this has been diversification into new agricultural enterprises. While this is not the only key to survival in drought or rural decline, there is evidence that it increases the resilience of rural areas to successfully cope with change.

The Northern Midlands and Fingal Valley regions of Tasmania are examples of regions that have faced extreme difficulty over the last decade. A major drought, combined with a downturn in the major industry – wool – has put farming communities and their land under great pressure. The Tasmanian Drought Regional Initiative (Harradine 1997) was one of the responses to the drought. The TDRI aimed to increase drought preparedness in the region of Tasmania through the adoption of risk management strategies based on the integration of efficient and sustainable water use into farm production. Studies within TDRI examined the water and soil resources in the regions, farm risk management strategies, and the alternative enterprise options available to farmers. One component of the TDRI aimed to develop strategies for overcoming barriers to agricultural enterprise diversification and in the Northern Midlands and Fingal Valley. This study addressed this last component.

This report considers some of the socio-economic factors that influence agricultural enterprise diversification, and in particular, the issues that are important for the Northern Midlands and Fingal Valley. Three research questions were posed:

1. What might be the expected process of diversification?
2. What are the constraints to diversification?
3. How could these constraints be addressed?

These questions are examined in the subsequent chapters of this report. Chapter 2 is a brief literature review on agricultural enterprise diversification. This proposes a model of agricultural enterprise diversification that used as the framework for the research. The methods are briefly described in Chapter 3, with the remaining chapters reporting on the results of the study. Chapter 4 reports on three case studies of agricultural diversification in other regions of Tasmania. These provide an insight into the possible path of diversification in the Northern Midlands and Fingal Valley. The current status of agriculture in this region is described in Chapter 5, in an effort to examine its preparedness for diversification. Chapter 6 looks at the local constraints to diversification from both the farmer and agribusiness perspectives. The findings from each of these chapters are drawn together in Chapter 7 where strategies for accelerating diversification are evaluated in terms of their likely impact on diversification and the ease with which they could be implemented.

2. Agricultural enterprise diversification

2.1 Introduction

Australian agriculture is facing major problems in terms of a poor outlook for major commodities, falling farm incomes and environmental degradation. These have combined to put pressure on Australian farms to change. The type of changes that are made can take many forms (Stayner 1997) such as changing farm enterprises, buying or selling land, obtaining off-farm work or leasing land. A policy of encouraging farmers to accept responsibility for drought management, combined with the decline in the wool industry has lead governments to pursue the diversification of agriculture as one of the mechanisms for maintaining rural communities. This is no more so than in the Northern Midlands and the Fingal Valley of Tasmania, where the combined effects of drought (and floods in Fingal) and the downturn in wool have had their toll on farm incomes. The possibility to access increased water supplies presents an opportunity for such diversification to proceed.

If water can be accessed in these regions, and climatic, soil and market factors combine to create opportunities for alternative agricultural enterprises, what is the likelihood that diversification will occur? How would such diversification proceed, and what factors would affect its progress? What strategies could be developed to support the process of diversification? These questions are the focus of this review of the literature on agricultural enterprise diversification. This chapter reports on international studies of diversification by addressing each of the issues above. It concludes with a 'model' of diversification that is used as the framework for the research reported in the remainder of this report.

2.2 Defining agricultural enterprise diversification

The study of farm diversification has been a topic of increased interest during the last decade. However, farm diversification has been defined in a number of ways so that comparison of findings from different case studies is difficult. Some have defined farm diversification as the development of non-traditional farm enterprises (Slee 1986). This includes non-conventional enterprises such as organic farming, snails, herbs; adding value to traditional products through either on-farm processing and/or forms of direct marketing, and new enterprises not associated with food production, such as farm-based accommodation and recreation. Others define it even more broadly as the adoption of income-earning activities outside the range of conventional crop and livestock enterprises associated with agriculture (McInerney, Turner et al. 1989). This includes off-farm occupations. The definition used by (Ilbery 1991) classified diversification in terms of structural or agricultural diversification (Table 1). It excludes the income generated from off-farm activities.

Agricultural enterprise diversification, as described in this report, refers to an increase in the number of agricultural enterprises run either on an individual property, or in a particular region. Some of these activities fall within Ilbery's classification of agricultural diversification. These may be modifications of existing enterprises, or introduction of new enterprises. In this report, agricultural enterprise diversification, as the term suggests, does not refer to non-agricultural enterprises (such as structural diversification or agricultural contracting). This is

because the purpose of the study is to consider how water resources can be better utilised to enhance agricultural production in the region. This report focuses mostly on agricultural enterprises that are 'unconventional' for the current agriculture of the region, and as such includes common crops such as poppies and potatoes. Nevertheless many of the issues affecting the decision to diversify into farm tourism would be relevant for other enterprises. As such the literature on other forms of farm diversification can help inform this study.

Table 1. A classification of farm diversification options (after Ilbery 1991)

1. Structural diversification
   a. Tourism
      (i) accommodation
      (ii) recreation
      (iii) combined
   b. Adding value to farm enterprises
      (i) by direct marketing
      (ii) by processing
      (iii) by selling skins/hides
   c. Passive diversification (e.g., leasing)
2. Agricultural diversification
   a. Unconventional enterprises
      (i) crop products
      (ii) animal products
      (iii) organic farming
   b. Farm woodland
   c. Agricultural contracting

In this discussion the term diversification, does not, however, exclude specialisation (concentration of effort on fewer enterprises). This is because it is recognised that specialisation and diversification may occur at the same time. For example potato production may be a new enterprise on farm (hence an example of diversification) and also become the major source of income (hence an example of specialisation). In another instance, a business operator other than the owner-manager may conduct the potato production (an example of specialisation).

In the remainder of this report, all references to diversification are to agricultural enterprise diversification.

2.3 Previous research on diversification

International research on farm diversification has been undertaken in the United Kingdom, Europe and the United States. Interest in research in this specific area began in the late 1980s when farm diversification was adopted as a major strategy of the British and European governments (Slee 1986 and 1987; Gasson, 1988; Ilbery, 1988; Dalton and Wilson, 1989; and Schucksmith, Bryden et al 1989). These studies examined the types of diversification being promoted, government policy, and the extent to which farm diversification was occurring. In the 1990s researchers began to look at decision making for farm diversification (Anosike and Coughenour 1990); the nature of farm diversification, the reasons for diversification, the types of farms and farmers involved and resistances to the uptake of alternative enterprises (Ilbery, 1991 and Ilbery, Healey et al. 1996); the role of government policy in farm diversification (Bateman and Ray 1994); the process by which farm diversification proceeds (Morris 1997); the economic benefits of farm diversification (Bowler 1999); and the role of regional institutional networks in farm diversification (Bowler 1999).

In Australia, however, there has been no specific research on farm diversification. There is, however, a significant body of research in the area of industry development, and on the topic of options for diversification. (Wood, Chudleigh et al. 1994) examined the factors affecting the successful commercialisation of new agricultural industries and the reasons for the lack of success of a number of efforts. In 1998 a number of papers on this topic were presented at a conference "New Rural Industries" in Western Australia. These covered the process of new industry development (Richards, Kitchen et al. 1998; Trendall and Pitman 1988), the impact of coordinated research and development on industry development (Millar 1998); the role of industry coordination and planning in industry development (Collins 1998); (Barker and Bonavita 1998); and New Zealand approaches to industry development (Howe 1998). In 1999 the Western Australian Department of Agriculture published a manual to assist farmers through the decision making process for diversification (Price and Verios 1999).

An underlying assumption in this review, and indeed this project, is that diversification provides economic benefits. However, there has been very little evidence presented in the literature on this topic. In a study of diversified farms in the UK in the late 1980's, Ilbery (1991) found that in 60% of cases, less than 10% of total farm income was generated by the alternative enterprise. In 20% of cases, more than half of the farm income came from the new business. A study by Bowler (1999), however, found that diversification brought opportunities such as raised farm incomes and increased employment. These benefits, however, required farmers to modify traditional farming systems, borrow capital and increase farm size. Further research is needed to identify the benefits of diversification in Australia, and the conditions under which diversification creates benefits to Australian farms and their communities.

A limitation of the international research, has been its broad approach to diversification, where agricultural enterprise diversification is not studied in its own right, but as one of the possible paths of farm diversification. A limitation of the Australian research is its narrow focus on industry development, showing no consideration of the process of diversification at the farm or regional level. In addition there have been no studies of farm diversification in the broader sense as in the UK and US. In both the Australian and overseas literature there has been little research on:

1. The extent and nature of farm diversification (particularly in Australia);
2. The process by which diversification occurs at the farm and regional level;
3. The types of farm and farmer involved in diversification;
4. The costs and benefits of farm diversification (economic, social and environmental);
5. The resistances to the adoption of farm diversification; and
6. The role of private and public institutions in the development of the farm diversification.

This literature review will examine topics 2, 5 and 6 in an effort to guide the research on the three key questions for the study region:

- What might be the expected process of diversification?
- What are the constraints to diversification?
- How could these constraints be addressed?

Literature on farm diversification, the adoption of innovations, farm decision making and rural development is used to inform the discussion of these questions. This information will

be used to develop a model of agricultural enterprise diversification that will form the framework for this study.

2.4 The diversification process

At the farm level, the decision to diversify is a major financial decision and one that will impact on the whole farm family. Not only is it a complicated decision, it is a long term decision, usually requiring up-front capital, and there are many unknowns, such as the technical aspects of the business, the markets, and the impact this will have on other farm activities. It often means entering into new relationships with agribusiness or financial partners, which may lead to a loss of independence. In addition, this decision is impacted on by the current situation of the farm family and the characteristics of the decision-takers, the local environment (such as council and State government policy, agribusiness activity, financial institutions) and the national and international environment (declining terms of trade, falling commodity markets, increased demand for niche market foods).

In the UK, Ilbery (1991) studied 120 diversified farms (all forms of diversification as shown in Table 1). This showed farm diversification to be a fairly recent phenomenon, with the peak period for initiating was in the late 1970s. Two thirds of the diversified farms are concentrated in within 5km of Coventry or Birmingham, with farms with adding value activities (especially direct marketing) favouring this location. Farm based recreation and especially accommodation were generally found further out. Adding value by direct marketing was the dominant form of diversification (82/120 farms) followed by farm based recreation was on 37 farms (31 'horsiculture'). Farm based accommodation (28/120) was biased to caravan and camping sites. Twenty four farms added value through processing and or commercial activities, nine through passive diversification (leasing). Only 11% of farms had three or more types of diversification. In the process of deciding to diversify, farmers conducted little market research on the feasibility of alternative enterprises. Only 1/3 had received advice before embarking on farm diversification, and this was mostly planning permission and licenses. The general attitude was one of experimenting on a small scale and 'seeing how it goes', especially for direct marketing. However, more than 50% of the farm based accommodation had sought advice.

The overwhelming reason for diversifying is the need to generate extra income from new sources. Only 10 farmers failed to list it as one of the three most important reasons, 80% said it was the single most important factor. This indicates that macro-scale processes, such as the cost-price squeeze, were the major cause of adjustment on farms in this study. Proximity to an urban market ranked second with the availability of resources. Personal factors and other factors assume little significance and were not listed by 88% of the farmers, but were important when the main reason was not income generation.

Over 70% were more than 45 and had 'farming' fathers. Only 20 rented the land they farmed, two-thirds were full owner occupiers. Thirty seven % of the sample was part-time, suggesting farm diversification is a sideline. Compared with other farms in the regions, farms with alternative enterprises were larger, and more likely on farms with extensive enterprises (as these provide pasture for tourist activities) and those with intensive dairying (as this provides value-adding opportunities). No statisticially significant relationship between farm size and the type of diversification undertaken. The trends showed the smaller

farms went for direct marketing, accommodation and recreation; the large farms went for adding value by processing and passive diversification. Also, the number of types of diversification increased as the size of farm increased.

In the US, Anosike and Coughenour (1990) surveyed 2004 Kentucky farmers on the topic of diversification. They found larger farms were more likely to be diversified, as were those operated by farmers with higher levels of education. Where the farm obtained income from off-farm work, diversification was less likely. This was also the case when the property was leased rather than owned. Age and form of farm organisation were not significantly correlated with diversification. In addition, regional variation was found to affect farmers' diversification decisions. This is likely to be the result of the different opportunities and constraints that operate in each regional environment.

As demonstrated in 2.3, there has been little Australian research on the process of diversification. Where this has been studied, it has focused on diversification initiated at the farm level, usually from the perspective of industry development rather than farm diversification. Trendall and Pitman (1998) modelled the process of industry development by examining case studies in inland aquaculture in Australia. The first step was the development of a species, market and production system. The second was starting individual producers growing and selling. This generates immediate production. Individuals determine their own growth and development pathways. An industry emerges from the aggregation of the individual participants (Trendall and Pitman 1998). Wood, Chudleigh et al. (1994) reviewed the development of 36 new industries in Australia, demonstrating a critical role for rural entrepreneurs and agribusiness firms in initiating the process.

2.5 Constraints to diversification

As shown in section 2.4, diversification is a major farm business decision. The factors that are likely to constrain the decision to diversify can be considered using the framework for the adoption of innovations. This views the farmer as an actor, in a farm and local community situation, responding to stimuli such as new agricultural technology. The process that individuals go through in adopting new practices or ideas is described in terms of stages (typically in terms of the stages of awareness, information, evaluation, trial, adoption). The factors affecting adoption were found to be

- the personal and social characteristics of farmers (e.g., age, farm size, goals, education)
- the characteristics of the technology under question (e.g., its economic feasibility, its level of complexity, the extent to which it can be trialled, the extent to which it fits with existing farm enterprises)
- the extent to which information about the technology was made available to farmers (e.g., through mass media, field days, one-on-one communication)

With the exception of the work of Ilbery (1991) and Anosike and Coughenour (1990) on socio-economic factors, little research has been conducted on the role of any of the above factors on diversification.

One of the major studies of factors affecting diversification decisions on-farm (Ilbery 1991). This study of 120 British farmers who had diversified into a wide range of activities, Ilbery found five major 'resistances' to diversification:

1. Land-use planning controls: These were needed for the construction of buildings, and the attitudes of planners could make diversification difficult
2. Tenancy restrictions: Tenants could be breaking their agreements by entering into non-agricultural production
3. Lack of finance: Farmers found it difficult to invest large sums in diversification projects
4. Lack of marketing skills: There was little incentive for farmers to change from guaranteed market to open competition.
5. Farmers attitudes: Diversification was considered separate from the main farm business and in only a few cases was it a fully integrated part of the overall business (Ilbery 1991).

Note that these results were obtained from 'adopters' rather than non-adopters, and a survey of the latter group would be needed to explore these issues further.

Slee (1986), also in the UK, suggested three additional constraints to diversification. The first was government agency activity. Firstly, Slee said there needed to be greater inter-agency cooperation, particularly with respect to policy development. He noted that British farmers were not experienced in seeking advice outside the Agricultural Development and Advisory Service, and in addition some agencies were unable to offer support for the alternatives they advocated. The tendency for the formation of organisations representing producers of new crops was also of concern. Anticipated problems included lack of market research to indicate demand for the product; windfall profits for early adopters (eg., breeding stock); early adopters use the organisation to 'sub-contract' later adopters and often there are more than one representative organisations, making it difficult to know where to go. Finally, Slee anticipated that the likelihood of cooperative arrangements between producers was low, and in such circumstances, the market place, rather than the producer group, determines prices.

Other research has demonstrated the importance of farm family business characteristics in the process of on-farm change. The family cycle has been shown to be particularly important in providing an impetus for major farm change (Gasson 1988)). Internal changes within the farm family, such as a son returning home to the farm, can provide a huge momentum for change. This is supported by the work of Bateman and Ray (1994), who studied the business activities of 427 farm households in Wales. These authors concluded that policy aimed at diversification of the farm business may be less successful as many internal and external factors appear to work to restrict such activities.

At an industry level, Wood, Chudleigh et al. (1994) studied the factors contributing to or constraining the growth of 36 new agricultural industries in Australia. It was shown that a large number of factors can contribute to or constrain the development of new industries. The most critical factors were found to vary from industry to industry, but generally production and marketing issues were the most critical to industry growth and development. Among the production factors, R&D was the most frequent positive factor, followed by the use of technology developed overseas. The marketing factors emphasised the need to identify, pursue and develop market opportunities, improve product quality and be aware of competition on the demand side.

The literature demonstrates there are a wide range of constraints to diversification ranging from the personal characteristics of the farm decision taker, to the nature of the farm family, to the nature of the diversification option, government policies and rural culture. Diversification is also dependent on there being market opportunities available, and the biophysical conditions suited to production.

2.6 Strategies for accelerating diversification

Accelerating farm diversification is a major objective of government policy in the European Union and in Australia. A wide range of approaches are being taken to achieve this. These approaches can be classified as follows:

1. Government driven
2. Agribusiness driven,
3. Farmer driven, and
4. Community driven

This section discusses each of these briefly, drawing on examples from the literature.

The basic premise behind government driven models is that financial incentives, or legal requirements, will bring about change in rural communities. An example of this is the push for organic farming in the EU, where governments are providing subsidies to encourage farmers to engage in the form of farming (Howe 1998). Farm subsidies have also been provided to encourage diversification into non-farm enterprises such as tourism (Ilbery 1991) but to date these have had little impact. Other policy instruments may be education and training in diversification (Price and Verios 1999).

Agribusiness driven diversification sees major agricultural production firms identifying market opportunities and engaging farmers to produce for these markets. An example is Heinz-Wattie in New Zealand, a contracting firm that identified a niche market for frozen organic peas in Japan (Howe 1998). Organic pea production was encouraged through lucrative contracts and an education and training program. (Wood, Chudleigh et al. 1994) also present examples of agribusiness driven industry development.

Farmer driven diversification sees farmers as rural entrepreneurs, seeking out opportunities and markets and developing production systems to suit. Evidence of this approach is seen in many Australian industries (Wood, Chudleigh et al. 1994; Trendall and Pitman 1998) and is the predominant form of diversification in the UK (Ilbery, Healey et al. 1996). Bryan (1989), discussing the role of rural entrepreneurs in rural development, concludes that the challenge is to harness the commitment and drive that characterises the entrepreneur and to facilitate his or her successful development through effective local, state and federal government policies.

The basic premise behind community led models is that sustainable economic development occurs in a community that develops its own capacities instead of relying entirely on others to do it for them. An example is the Nebraska Development currently being applied through Agricultural WA as the Community Builders component of the Doing More with Agriculture program (Howe 1998). Other examples are the Clutha Agricultural Development Board, set up in New Zealand to provide practical support for agriculture, and the Crops for Southland project, also in New Zealand (Howe 1998). In the Crops for

Southland project a farmer board works with a facilitator, research scientists and the local council to identify new crops and to reduces the risks associated with the growing and marketing of new crops. Both programs have led to increased employment and profitability (Howe 1998).

While there is little direct literature on the impact of these alternative strategies on farm diversification, the education and training component of government policy, the agribusiness driven model, the farmer driven model and the community driven model all provide examples of how successful diversification can be achieved. A combination of these approaches to suit the constraints and issues facing particular regions at particular times is likely to be the most successful.

2.7 A model of agricultural enterprise diversification

Due to the limited research information available on agricultural enterprise diversification, this review has focussed on a slightly broader issue of general farm diversification and industry development. Many of the issues, however, could be expected to be the same for 'structural diversification' as for 'agricultural diversification'. Indeed it could be expected that entry into new agricultural enterprises would be a less difficult path than that of entering into entirely new businesses such as tourism. Based on this evidence, there appear to be a number of preconditions for agricultural enterprise diversification. These are market opportunities, production suitability, and declining farm incomes.

Provided these exist, the rate of diversification will be a function of the following:

- The nature and extent of the market opportunities and production suitability
- Characteristics of the decision-takers, the farm, the firm and the farm family
- Characteristics of the local environment: opportunities, constraints and the extent to which it supports diversification
- Characteristics of the State, Federal and global environment: opportunities, constraints and the extent to which these support diversification.

Support for diversification can be considered in terms of how well the local, state, federal and international environment support the processes for accelerating diversification, whether these be government, farmer, agribusiness or community driven.

2.8 Research questions

The aim of this study is to develop strategies for overcoming barriers to agricultural enterprise diversification and in the Northern Midlands and Fingal Valley. Using the above model of diversification as a framework, the following research questions will be addressed:

1. What path would diversification be expected to take in the Northern Midlands and Fingal Valley?
2. What are the constraints to diversification in this region?
3. What strategies could be used for accelerating diversification in the region?

The study will attempt to focus on all of the factors contributing to diversification, rather than any one factor in particular. It will aim to identify roles for different stakeholders in

agricultural enterprise diversification. A range of qualitative research methods will be used to address the research questions, as described in the following chapter.

3. Methods

3.1 Introduction

To address the three research questions identified in Chapter 2, a range of qualitative data collection methods were used. These included semi-structured interviews, focus groups, secondary data analysis and a questionnaire. The extent to which each method addressed each research question is shown in Table 2. This chapter presents a brief outline of the methods used in this study, with details appearing in the appendices.

Table 2. Research questions and research methods

	Research method			
Research question	Literature review	Semi-structured interviews	Focus groups	Second-ary data analysis
What path would diversification be expected to take?	4	4		4
What are the constraints to diversification in this region?	4		4	4
What strategies could be used for accelerating diversification in the region?	4	4	4	

Prior to the investigation proceeding, ethics approval was obtained from the University of Tasmania Human Ethics Committee. All participants were provided with an information sheet detailing the program (Appendix 9.1) and indicated their consent to taking part in the study by completing the consent form. Confidentiality was achieved by coding of data, and storage at the University of Tasmania. Anonymity was ensured by only associating data with its source when permission had been gained from the source. Participants were free to withdraw from the investigation at any time.

3.2 Semi-structured interviews

3.2.1 Regional development

The first series of interviews aimed to examine the process of diversification in other regions of Tasmania. Participants were selected on the basis of their experience in agricultural diversification in one of the three regions: the Coal River Valley, the Derwent Valley or Cressy. Eight people were interviewed using the schedule presented in Appendix 9.2). Hand written notes and tape recordings were used to record data, which was transcribed and summarised for content analysis against the research questions. The results were written up as case studies for each region, rather than comparing answers across regions.

3.3 Secondary data analysis

A social and economic analysis of the Northern Midlands and the Fingal Valley was undertaken to provide an overview of the study regions. Agricultural production data was sourced from the Australian Bureau of Statistic (ABS). A computer database Agstats, developed by the ABS was used to compile details on the land use, agricultural inputs and outputs and farm structure of each of the regions. This data was summarised in a spreadsheet.

Demographic and economic information was sourced from the ABS. Further information that was required were the characteristics of the farm population, commercial services, government services, communication channels, groups of influential people and politics. This information was sourced from a questionnaire (Appendix 9.4) sent to participants in the focus groups described in the following section.

3.4 Focus groups

A series of three focus groups were conducted at Longford, Campbell Town and Fingal in conjunction with Davey and Maynard and Armstrong Consulting Services. The client lists of the consulting firms were used to send out invitations to potential participants including farmers, agribusiness and government representatives. The focus groups were divided into two sections. The first section was conducted by David Armstrong and John Maynard. Participants then had a short break and after they were then introduced to the second session (see Appendix 9.4). This explained the outline of what the project was studying, why participants were being involved, the process for the focus group and its aims. Overhead projections of the key points for which responses were required were used to keep the group on track. Tape recordings of the group meetings were transcribed and analysed in terms of the regions history of diversification, participant perceptions of barriers, and ideas for strategies to accelerate diversification.

4. The study region: the Northern Midlands and Fingal Valley

4.1 Introduction

A socio-economic analysis of the agriculture and the agricultural community in the Northern Midlands and the Fingal Valley was undertaken to provide a background on the human capability of the region's agricultural sector. This knowledge assists the development of projects aimed at fostering diversification in the region by providing details about the number and type of properties, their main enterprises, past diversification efforts and communication channels. The analysis presented here is not complete, due to limitations in resources. However, it is hoped that this may be used as a 'living' document which is expanded and developed as the Tasmanian Regional Drought Initiative takes on a life of its own.

The analysis involved an examination of the regions' agricultural history and current situation, based on the approach of (Lenne and Hartley 1983). A combination of sources were used to develop the material. This report is divided into three sections:

1. A brief description of the area and climate, based on published data;
2. A brief overview of the region, based on the Australian Bureau of Statistics information agricultural land use and outputs and data from the agricultural Census;
3. An outline of the rural communities: their demography, services and communication channels based on Census data, interviews and documents.

The results are discussed in light of the implications for the accelerating of diversification in the Northern Midlands and Fingal Valley.

4.2 The study region: the Northern Midlands and Fingal Valley

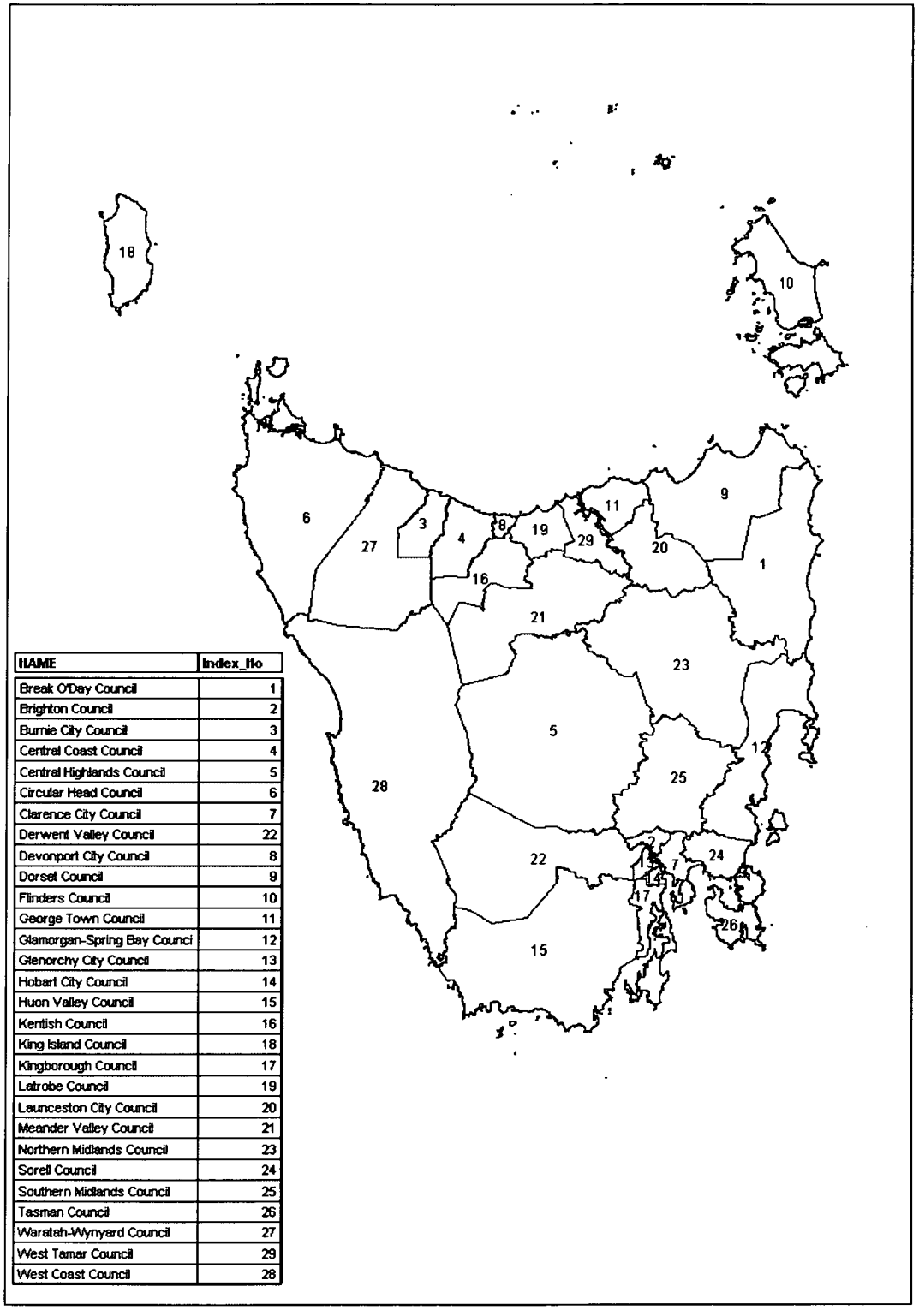
4.2.1 Area and climate

Area definition

The Northern Midlands consists of the majority of the Northern Midlands Municipality (Figure 1). This area covers 5,130 square kilometers and extends from Liffey Bluff in the West to Mount St John in the east and from Relbia in the north to Toombs Lake in the south (NMC 1998). This includes Longford, Campbell Town and Ross which prior to the merger of municipalities in 1993 were separate municipalities. Also part of the Northern Midlands Council are Rossarden, Avoca and Royal George that were formerly part of the Fingal Municipality.

Although the majority of the Fingal region lies within the Northern Midlands Municipal boundaries, the eastern portion of the Fingal Valley lies in the Break O'Day Municipality. Along with the Fingal Valley, Break O'Day also encompasses the coastal zone from Denison River in the south to Eddystone point in the North, spanning a total area of 3809 square kilometres.

Figure 1. Tasmanian municipalities



NAME	Index_No
Break O'Day Council	1
Brighton Council	2
Burnie City Council	3
Central Coast Council	4
Central Highlands Council	5
Circular Head Council	6
Clarence City Council	7
Derwent Valley Council	22
Devonport City Council	8
Dorset Council	9
Flinders Council	10
George Town Council	11
Glamorgan-Spring Bay Council	12
Glenorchy City Council	13
Hobart City Council	14
Huon Valley Council	15
Kentish Council	16
King Island Council	18
Kingborough Council	17
Latrobe Council	19
Launceston City Council	20
Meander Valley Council	21
Northern Midlands Council	23
Sorell Council	24
Southern Midlands Council	25
Tasman Council	26
Waratah-Wynyard Council	27
West Tamar Council	29
West Coast Council	28

Figure 2. Northern Midlands average climate 1986-1999

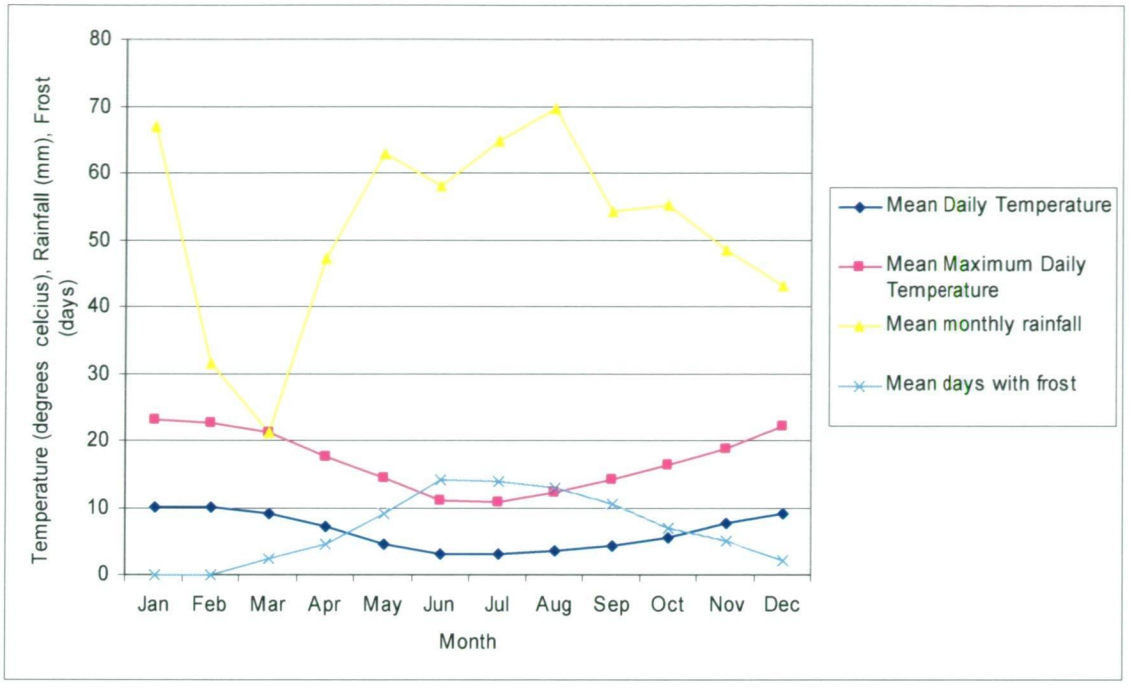
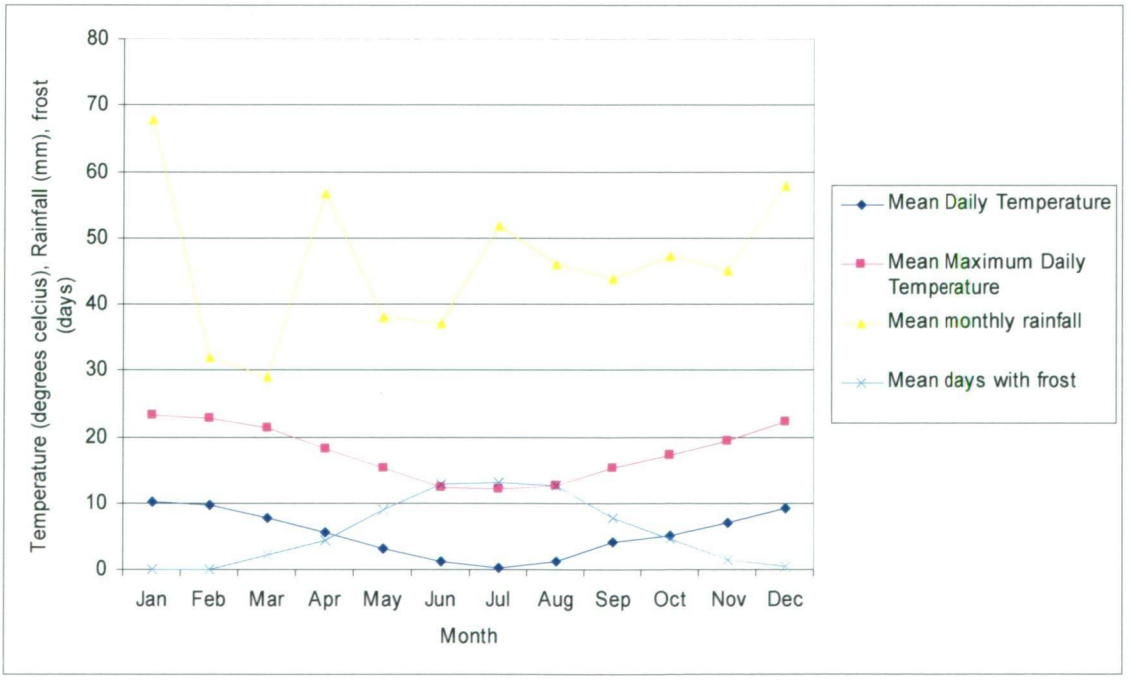


Figure 3. Fingal Valley average climate 1986-1999



Climate

Climate data for the past 10 years is presented in Figures 2 and 3. The Northern Midlands is a low rainfall region, usually experiencing less than 500 mm of rainfall annually. In the past 10 years however, the region has recorded an average annual rainfall of 613mm. Temperatures average around 23°C in the summer months, decreasing to an average of around 12°C in winter. The region is traditionally drought prone, with droughts being recorded often. Frost is also a major problem in the region, with most of the frosts occurring from June through to August. However frost also occurs sporadically in the Autumn and Spring months.

Fingal has a very similar climate to the Northern Midlands, with the mean daily maximum temperature in summer around 23°C and winter 12.5°C. Rainfall in the region is low, with annual average rainfall usually at 500mm or less. The region is also frost prone, however the region has experienced less frost than the northern midlands in the last 10 years. Along with frost, Fingal also experiences frequent floods.

4.2.2 Agriculture in the region

Settlement of the region

The Northern Midlands and Fingal region has a long history in agriculture, in particular wool production. This can be accounted for right back until the early 1820s when a successful shipment of wool to England stimulated the growth of pastoralism in the Midlands (Scott et al. 1965). At this time, land in these two regions was being alienated from the Crown, with most of the grants laying along the major river systems of the Macquarie, South Esk and Meander rivers. These grants were extremely large relative to the areas granted in the south, with the midlands and east coast being noted to be more drier open country. Much of this land was acquired by existing landowners, so that by 1835, the midlands was predominantly owned by "20 000 acre gentry" (Scott et al. 1965). Many of these properties remain in these historic families. By 1844, the entire midlands, upper Derwent Valley and much of the east coast had been alienated from the Crown, with most graziers growing wool, cereals and harvesting timber.

Current agricultural land use

Land area and farm holdings

In 1998, there were 401 farms located in the Northern Midlands and Fingal Valley region of Tasmania. This comprised of 430 457 hectares of land and 22% of the area of Tasmania. Of this total area, 85.7% was considered as the Northern Midlands, with 333 farms (83% of the farmers in the study region). The average size of land holdings in this part of the region was 960 hectares. The remaining area comprised of the Fingal Valley region, which consisted of 14.2% of the total land area of the region, and was made up of 68 farms. The average size of farm holdings in the Fingal Valley was 900 hectares.

Table 3. Agricultural production in the Northern Midlands and Fingal Valley
Year to March 31, 1998

	Area or number		No of farms		Production	
	ha	% of Tas	N	% of Tas	tonnes	% of Tas
All holdings	430457	22	401	9		
Cereals						
Crops and pastures for hay	6693	12	218	9	24087	11
Wheat for grain	1603	57	42	27	6034	52
Oats for grain	4273	54	143	39	9132	61
Barley for grain	6069	46	98	24	15070	49
Buckwheat for grain	14	15	1	11	25	13
Triticale for grain	946	52	28	27	3593	52
Cereals for grain	12921	50	189	25	33881	52
Cereals (incl. forage sorghum) cut for hay	610	25	37	19	2092	24
Other crops						
Oil poppies	1645	16	60	9	np	
Field peas for grain	258	51	17	44	590	51
Canola	65	57	2	33	72	57
Legumes for grain	307	48	18	35	728	50
Seed crops						
Cabbage for seed	4	9	1	6	1	8
Peas, green - for seed	82	47	4	22	258	59
Vegetable seed – other	75	40	12	19	51	52
Vegetable seed	162	15	16	8	31	1
Vegetable crops						
Potatoes	953	11	50	9	37150	10
French & runner beans	128	8	15	8	989	8
Peas green	1439	24	47	12	16076	23
Vegetables for human consumption	2602	13	85	9	55343	10
Sheep and wool						
Sheep and lambs shorn/wool	1239410	31	330	18		
Sheep and lambs (at 31 March)	1155681	30	344	18		
Dairying						
Dairy cattle at 31 March	5722	3	27	3		
Beef						
Meat cattle at 31 March	59712	12	271	9		

Source: ABS. np = not published
See Appendix 9.7 for complete details of each municipality and the total study region

Major cropping enterprises in the region

Table 3 demonstrates the total agricultural production in the Northern Midlands and Fingal Valley for 1998. Cereals were the most predominant crops grown throughout the region.

Cereals grown for grain were the largest crop group, producing 33881 tonnes in 1998 (which was 52% of Tasmania's total production). Ninety five percent of the region's area of cereal grain crop was sown in the Northern Midlands, and the remaining five percent in Fingal. In total, almost half of the farming population was growing some cereals for grain.

Other major cereal crops that were grown in the region were oats, wheat, barley and triticale. Between 95-97% of the total area of oats and wheat was grown in the Northern Midlands region, and the remainder in Fingal. These crops represented between 50-60% of the total cereal production for Tasmania. Only three percent of the region's area of wheat and oats was grown in Fingal.

Poppies, peas and potatoes were less traditional crops grown in the region, having almost doubled in area over the last five years. Over 1600 hectares of poppies were grown in the Northern Midlands and Fingal region in 1998. This was 16% of the total area sown in Tasmania, with 85% of the study region's area grown in the Northern Midlands and 15% in Fingal. Just under 15% of the farmers in the region were involved in poppy production.

Over 1400 hectares of green peas (for human consumption) were sown in the Northern Midlands. This was 24% of the total area in Tasmania that was sown. Peas were also grown in the Northern Midlands for seed, with 82 hectares sown in 1998. This represented 59% of the total production of pea seed in Tasmania and was grown on only four properties in the region.

Potatoes were grown by 12.5% of properties in the Northern Midlands and Fingal region. A total area of 953 hectares of potatoes was planted in 1998, with 91% being grown in the Northern Midlands and 9% in Fingal. This represented 10% of the total production for Tasmania. Canola was also grown in the Northern Midlands over 65 hectares on two properties. This represented 57% of the total area of canola grown in Tasmania in 1998, and 57% of the total production.

Animal production in the region

Sheep and wool production are the largest animal enterprises held on properties in the region. Thirty percent of Tasmania's sheep and wool production was grown in the Northern Midlands and Fingal region in 1998. There were 330 farms that contributed to production, with 85% from the Northern Midlands and 15% from Fingal. Beef production was conducted on 271 properties in the region, representing only nine percent of the total production for Tasmania. Seventy five percent of this production was grown in the Northern Midlands region and 25% in Fingal.

4.2.3 The rural communities of the Northern Midland and Fingal Valley

Demography

Demographic information was sourced from the 1996 Census data from the Australian Bureau of Statistics (ABS). Below is a description of the population within the Northern Midlands and Fingal region.

Northern Midlands

The population of the Northern Midlands had increased by 1.4% over the past five years, from a population of 11 655 residents to 11 816. Just over 50% of the population was male, with 49.81 female. The median age was 35. Just under half (42%) of the population was married with dependent children and 45% of the population had full ownership of their homes. Tertiary qualifications were held by 4.5% of the population, another 4.5% had an undergraduate or associate diploma qualification and 12% had a skilled or basic vocational qualification.

The median household weekly income wass around $506.00 per week (ABS 1996), which is average for Tasmania. Employment in the region was above average for Tasmania, with 66.4% of the population employed and working full time. Unemployment was at 9.85%, average for the overall Tasmanian level of unemployment.

Just over one third (34%) of the total number of establishments in the Northern Midlands were considered to be agricultural. In the five years up to 1995, the total number has decreased from 1644 establishments to 1605.

Break O'Day

The population in the Break O'Day region has remained fairly constant in the five years up to 1995, at around 5825 residents. There has only been a marginal increase of 0.9%. Of this population, 50.6% were male, 49.4% female and the median age of the population was 38 years. Married families with dependent children made up 37% of the population. Tertiary qualifications were held by 4.7% of the region and 3.6% had an associate diploma or another type of undergraduate qualification. Vocational skill qualifications were held by 12.3% of the population.

Data from the 1995 census ranked the region's median weekly household income of $375.00 lowest out of the 43 statistical local areas in Tasmania. Break O'Day also ranked 36 in terms of the low proportion of employed persons working full time (58.5% of the population compared to a median of 65%) and the first[t] in terms of its unemployment rate of 20.5%. The median unemployment rate for all of the Tasmanian statistical areas was 11.7%.

4.2.4 Agricultural services in the regions

All of the current agricultural services and financial assistance programs currently available in Tasmania are accessible by farmers in the Northern Midlands and Fingal region. Many of these services, however, have changed considerably over the past 10 years due to cut backs in government funding and declining returns for agribusinesses involved in wool and livestock. A summary of the services available to farmers is discussed below.

Government services

The Northern Midlands and Break O'Day Municipal councils provide local government services. The majority of services are not specifically for farmers as most activities are aimed for the urban residents. However, farmers do benefit from the maintenance and

construction of roads and bridges, and can use the waste transfer disposal outlets. The councils also provide and maintain community halls, swimming pools and have planning services available.

The majority of state government services are provided to farmers through the Department of Primary Industry, Water and Environment (DPIWE). The level of services available from the department has changed over the past 10 years, mainly due to declining funding, a shift in emphasis from farm production to resource sustainability and the withdrawal of advisory services for farmers.

The current services of the DPIWE aim to support the economic development of Tasmania's rural, water and marine sectors, and to sustain Tasmania's water, rural and marine resources. These are summarised below:

- Vegetable industry: New crop development, quality assurance programs, publications and integrated pest management programs.
- Extensive agriculture: Quality assurance programs (Tasmania Quality Wool, Cattlecare and Flockcare), sustainable pasture management and seed production
- Food quality and safety services: Animals disease management, chemical management and useage, meat hygiene, public health and animal welfare
- Dairy industry: Extension programs such as Targeting our Productivity, discussion groups, field days, workshops and courses aimed at improving dairy productivity.
- Business services: Business development assistance through FarmBi$
- Diagnostic services: Animal health laboratory, plant health laboratory, seed testing laboratory and seed certification.
- Quarantine: Pest and disease surveillance
- Land management: Advice and information on soil and land management primarily in relation to private freehold land, although advice is provided from time to time in relation to public land. A number of projects are aimed at producing publications on land management for use by landholders and others.

Specific training courses offered by the DPIWE are described in section on education, training and community activities.

The Department of State Development (DSD, formerly known as the Tasmanian Development Authority) provides some financial services to farmers if required. When DSD was the Tasmanian Development Authority, the financial services included discount finance for farmers. This service is no longer available but the DSD does assist farmers to restructure their finances, to develop proposals for finance applications and to introduce potential financiers.

Agribusiness services

There are four main agribusiness companies servicing the Northern Midlands and Fingal Region. Roberts Ltd and Webster Ltd are the oldest serving agribusiness companies in Tasmania. In the past the types of services that were available to their clients were similar, with each company having merchandise, wool, livestock, machinery and finance available. Since 1998, Webster ceased wool and livestock services with Roberts Ltd becoming the

main provider of these services. Included in these services are regular visits from regional company agents who advise and assist farmers with management and marketing decisions. There are also other independent agents offering some livestock and wool services. Interstate agribusiness firm Elders Ltd entered the Tasmanian market this year.

Both Roberts and Webster stock rural merchandise that can be delivered to the farm gate. Finance and credit accounts are available to clients. The two companies operate service the Northern Midlands and Fingal region from Launceston. Tasmanian Agricultural Services operates from Campbell Town and sells merchandise and provides advice to farmers as required. The company has been in the region for 20 years.

The Devonport based agricultural consulting firm, Serve-Ag, offers a range of services to farmers all over Tasmania. These include advice on from tertiary education field staff on crop protection, crop management, farm management, soil management and livestock production. The company provides merchandise services relating to this advice. It is also involved in research and provision of analytical services such as soil and plant analysis. Services are provided to farmers on a fee for service basis or as a margin on product sales.

A number of farm management consultants operate in the region. These can be contacted through Agricultural Consultants Tasmania. The Tasmanian Farmers and Graziers Association runs a machinery ring, which provides access to local machinery contractors.

Education, training and community activities

A survey of participants in a series of workshops in Longford, Campbell Town and the Fingal Valley established that the farmers in the study region belong to and attend many different group activities and programs (see Appendix 9.7 for detailed survey results). These activities provide an opportunity for professional development, personal development and networking. Below is a brief description of the groups and programs that farmers have identified as being involved in the regions.

Triple P - Paired Paddock Production

The Victorian Grasslands Association initiated the Triple P Program. Farmers from Tasmania had the opportunity to undertake on farm trials to compare their existing fertiliser applications with higher recommended applications. The trials were monitored for two years, after which the feasibility of the additional fertiliser applications was assessed in terms of the level of wool productivity. The association has recently published the results from the first trial. In the study region, there were two groups. These were Campbell Town (five members) and Cressy (six members). It is intended that the programme will continue and farmers in the region will be invited to participate.

Property Management Planning

Property Management Planning (formerly Whole Farm Planning) courses have been conducted by the DPIWE for farmers around Tasmania for many years. The course consists of a series of 10 workshops covering the physical, financial and human resources of the farm business. A plan of each participant's farm is used as a basis for each session, where

an understanding of the various different sustainability issues studied at each session can be applied to the farmer's own situation.

Farmers in the Northern Midlands and Fingal Valley regions have been actively involved with the course over the past 10 years. Fifty seven properties in the Campbell Town region and 23 in the Fingal Valley region have completed the course. The DPIWE will organise courses if interest is generated by a group of farmers.

In addition, the DPIWE offers an adapted Property Management Planning course called the Vegetable Whole Farm Planning course designed for vegetable cropping farmers. A follow up course called 'Farming your future - keys to success' is also offered. This is a workshop where members of the Whole Farm Planning course meet again to review their farm plans and develop new strategies.

Topcrop Australia

Topcrop Australia is a network of cereal producers co-ordinated in Tasmania by the DPIWE. It aims to give growers a focused awareness and understanding of the key factors influencing their cereal cropping performance (Andrews and Till 1996). The programme is conducted Australia wide with regional groups organised for functions and field days. To increase access to information the current State development professional agricultural advisors, private consultants and agribusiness advisors each serve the groups of farmers across a number of districts.

Topcrop is based on crop monitoring packages such as 'canola check' and other integrated check packages for broader cropping systems. These are decision support systems which help farmers check their way through the critical success factors of production, especially with new crops (Andrews and Till 1996).

There are three active Topcrop groups in the study region. The Fingal Valley has one Topcrop group (seven members) which has had four meetings this year. Crop monitoring is the focus of this group. In the Northern there are two groups: one at Blackwood Creek (nine members) and the other for the Ross/Tunbridge districts (about 20 members). The groups can be established by the Topcrop representative or by growers. Each group identifies its own priorities, with both of the Northern Midlands groups identifying poppy crops as their highest priority. Both groups have had a number of meeting this year, where agribusiness agronomists and poppy company representatives have attended the meetings.

Southern Farming Systems

Southern Farming Systems began in Victoria in 1995 as a non-profit, farmer owned and operated group, with the aim of carrying out applied research in order to develop adapted and more profitable farming systems in the high rainfall, cool climate zone of southern Australia. Agribusiness organisations, the Grains Research and Development Corporation (GRDC), CSIRO and a number of other organisations support the group. There are a number of active groups within Tasmania.

Sustainable Grazing Systems

Sustainable Grazing Systems is a network of technical resource people aiming for profitable grazing systems for the future. It runs a number of activities including the Prograze course detailed below. It also runs:

- the Sustainable Grazing Award which aims to identify properties being managed in an environmentally and economically sustainable manner, and demonstrate these management strategies to other producers
- district sites which aim to assist producers to find solutions to local grazing problems, as well as learn about different grazing options and ways to monitor pasture and livestock
- a quarterly magazine, "Prograzier" that reports on the latest developments of national research experiments. This magazine is distributed to over 800 people in the Tasmanian grazing industry.
- information sheets "Tips and Tools" on issues relevant to management of pastures and strategies for grazing management of different pasture species

Prograze is a grazing management course co-ordinated by the DPIWE. It aims to help graziers learn pasture and animal assessment skills that better equip them to improve the profitability and sustainability of pasture grazing systems. The course consists of nine hands on half-day sessions conducted four to five weeks apart. The sessions are held on farms and involve practical and discussion segments.

In the Northern Midlands, three groups have completed the course. These were at Campbell Town (6 farm families), Cressy (11 farm families) and Nile (9 farm families). In Fingal, one course has been conducted where 15 farmers completed the course. Courses are organised when there is a large enough group of farm families interested in doing so.

Tasmanian Women In Agriculture

The Tasmanian Women in Agriculture Organisation was formed in 1994. The organisation consists of rural women from around Tasmania. The aim of the organisation is to

- raise the profile of agriculture
- encourage women to realise their full potential
- provide a forum to gain knowledge and understanding about agriculture at state, national and international levels
- be acknowledged as a legitimate voice by government and industry organisation
- comment on issues affecting rural women and farming families

The organisation provides a bi-monthly newsletter called 'Bluegum' and is co-ordinated by a Project Officer based at the DPIWE. The Northern Midlands group encompasses the Fingal Valley and Northern Midlands region, with a membership of 90. In total the organisation has 560 members Tasmania wide.

Landcare

The DPIWE administers Landcare groups on behalf of the National Landcare Programme (NLP) within the DPIWE. The overall goal of the programme is to achieve efficient, sustainable and equitable management of the natural resources in Australia. The NLP

provides funding to assist community groups to work towards sustainable management of land, water and vegetation resources in their local area (Campbell, 1994).

Northern Midlands and Fingal regions have a high Landcare group membership, with a number of groups active in the area. There are 16 groups throughout the all which have high membership levels. From the survey, it was found that Landcare groups were identified by farmers as being one of the main meetings they attend most frequently.

Agricultural Show Association

There are two annual Agricultural Shows held in the study region, the Campbell Town Show and the Longford Show. The Campbell Town show is one of the oldest shows held in Tasmania. It is organised by the Midland Agricultural Association at the local show grounds in the first week of June. The association has a large membership and he show is the key wool show for Tasmania. The Longford show is held annually in the middle of October.

4.3 Discussion and conclusions

The Northern Midlands and Fingal Valley represent a major part of Tasmania's agricultural land. About half of the landholders in the region are already involved in crop production, with about 15-20% growing crops other than (and possibly in addition to) cereals for grain. The Northern Midlands region is already growing a wide range of processing and contract crops but production seems to be concentrated amongst a small number of producers. In the Fingal Valley the extent of diversity in cropping is lower than in the Northern Midlands, with a smaller proportion of landholders involved in crop production. The current situation provides a strong platform from which diversification could spring.

The region is well serviced by consultants; agribusiness firms and training opportunities. There is little evidence, however, of a local agricultural development group in either region. Efforts to support diversification within the region should build on the existing skills and structures within the area, but should also focus on fostering regional development groups in both districts. This could be achieved by a local government initiative, an existing group initiative, or by new farmer led initiative.

5. Diversification in Tasmania

5.1 Introduction:

This chapter details the data gathered from a range of sources to explore the process, drivers and impediments to agricultural diversification in three Tasmanian regions: Cressy, the Coal River Valley and the Derwent Valley. The data are drawn from two major sources: transcripts of semi-structured interviews on regional development with key informants from each of the regions, and public documents. Data were cross-checked with that obtained from focus groups held in Longford, Campbell Town and Fingal.

The results are presented as case studies of each region. A history of diversification is described, followed by identification of key impediments and drivers for change. It should be noted that these results are not definitive, due to the limited nature of the study. They do, however, provide valuable insights into some of the processes of agricultural enterprise diversification in rural Tasmania. The results obtained are compared with that in the literature. In Chapter 6 the findings are integrated into a model of agricultural enterprise diversification for the Northern Midlands and Fingal Valley.

5.2 Results: Agricultural enterprise diversification in three regions of Tasmania

5.2.1 The Coal River Valley

The history of agricultural diversification in the Coal River Valley

The Coal River Valley was settled in the 1820s and has a long history of clearing, cropping and grazing. The area was well suited to the early cereal varieties brought from England and was easily accessible by sailing ship, with grain shipped to New South Wales and Victoria. However after about 100 years of continuous cropping, substantial land degradation had occurred, exacerbated by the impact of numerous droughts. Major problems were weeds, soil erosion and tree decline. This was partially addressed in the 1930s fertilisers, pasture rotations and subterranean clover led to improved pasture, which in turn made livestock production more profitable. The wool industry had become the backbone of the region's agricultural production, supplemented by dryland cereals.

In the early 1960s a farmer group began lobbying for an irrigation scheme. In 1967 the Coal River Products Association (CRPA) was formed with the primary objectives being to address the problems of the valley and to find more sustainable enterprises than the traditional activities of grazing and cereal cropping. In 1986 the Craigbourne dam was built. Initially some landowners did not seen the value of the scheme: "We'll just grow more of what we can't sell already (wool, fat lambs, grain)". Even once it was built, there wasn't a rush to grow new crops, as many of the landowners had a limited idea of the range of crops that could be grown. Gradually, however, new crops and opportunities entered the region from a range of sources.

Some new opportunities such as essential oils and canola were fostered by the work of the University of Tasmania. Others, such as peas, vegetable seed crops, poppies and pyrethrum came through the entry of agribusiness firms to the region, either approaching individuals, or the Coal River Products Association, to gauge interest in producing crops under contract. Farmers with a history of dryland cropping were often the first to get involved, leading the way for the other farmers. New companies are still approaching landowners and the association to trial new crops. Some crops have been a success, some have not. A recent example, garlic, has been 'a bit of a disaster the last couple of years'. Perennial crops, such as vines and orchards, were initiated by individual landowners, and in some cases are now also being grown under contract.

A wide range of irrigated annual and perennial crops are now grown in the region to complement livestock production. Often producers have annual, perennial and dryland crops, as well as sheep and cattle. While livestock might still occupy three quarters of the farm area they may only be a quarter of the income. Livestock and cropping enterprises are complementary on the variable land resource of the Coal River Valley.

> "The better farmers have still got a graze/pasture phase in the system. Some of the others have got more into continuous cropping as a sort of short term measure, but they all appreciate that they've got to get some pasture back into the system eventually."

Drivers and impediments to diversification

The keenness of the landowners to diversify was demonstrated by one of the interviewees as he spoke about the types of crops grown in the Coal River Valley, reeling off peas, cereals, vegetable seeds, canola and "whatever else they can get their hands on."

The entry of contracting firms into the Coal River Valley was sometimes the result of landowners 'courting' the firm, or by firms identifying a potential growing or marketing advantage.

> "There is a bit of both, they tend to follow each other. Once one seed company gets going the others realise there is an opportunity there and sort of get into it. Sometimes they come looking for us, looking for people. Other times, we hear there is something going and we try to lobby either the companies or for government assistance to help get them going."

For the contracting firm, the advantages of growing in the Coal River Valley may be a spread in the production season across the state, relative pest free status, growers willing to grow at lower prices or a better growing environment.

The CRPA has played a significant role in accelerating diversification and change in the region. Initially, it had a single platform of an irrigation scheme. Once this was achieved, it moved on to playing a major role in the development of the region. During the last 10 years the CRPA has had between 30 and 70 members, mainly landowners. Gradually the association has increased its linkages with contracting firms and explored opportunities for harnessing more water, for sustainable agriculture and regional development. Committees are formed to address specific issues as they arise. The association has held workshops to promote the idea of diversification and development, to try and motivate members. It tries

to foster the sharing of information and ensure members know what is going on in the district and outside. The ability of the group to co-ordinate large numbers of individuals has helped it attract funding from a range of sources. A Catchment Management Committee is involved in examining all the activities in the valley: tourism, agriculture and other industries, involving a wide range of community participants.

The group holds evening barbecues and farm visits, but the main activities have been regular dinner meetings with invited guest speakers. These dinners are paid for in advance as part of the $170 annual membership fee. This gives members a vested interest in participating.

> "It sounds trivial but in fact it means that people enjoy coming, they have a good time, they have a few drinks, they have their dinner and if there's an interesting speaker that's even better."

The eagerness of the farmers, and the competitiveness of their cropping operations relative to other regions, have supported diversification. Whereas farmers on the north west coast say the margins of peas for freezing are not adequate, they compare well with alternative enterprises in the Coal River Valley. This has been partly offset by the higher freight costs associated with processing vegetables, and may be one reason why processing vegetables (apart from peas) are not grown to any large extent in the region.

> "Often we've had to take a lower price or shared some degree of the freight cost with them (the processors)."

Higher value seed crops have the advantage of a smaller freight component in the overall value per hectare.

Support from research organisations such as the University of Tasmania has helped bring about change in the region. Examples include the development of the essential oil industry, the pyrethrum industry, canola and vegetable seeds.

> "In most cases the University farm has been at the forefront of these sort of developments, led the way in many cases."

The local Landcare group operates independently of the CRPA. This group has also facilitated change, as have a number of leading farmers in the district.

> "We've had whole farm planning courses through the Landcare group and a good proportion of the more active members have been through the course."

> "There's about ten or fifteen people you'd say, that you could go to and they'd be willing to try almost anything new and they'd be happy to get involved in any Landcare type scheme or any scheme to promote farm hygiene or whatever else. So there's always a group of leaders like that, that you can rely on that'll have something useful to say and probably get involved in whatever's going."

While the younger generation is seen to be more willing to diversify, there is still a large group of middle-aged farmers still actively diversifying.

> "We had a few leading lights in the early days who got the association going that, in some cases their sons are still working the properties or they are, and sort of continuing on."

A history of dryland cropping in the region provided the basis for expansion into irrigated cropping, with a small number of farmers leading the way. One interviewee spoke about one leading farm family:

> "They ... increasingly got into cropping once the irrigation was there and they geared up on the equipment. They've been leaders all the way through. The gradual intensification, putting in more intensive crops, they went through the cereals, and peas and poppies and then they've tried everything else, vegetable seeds and garlic and whatever else."

While some young farmers are coming through the ranks, there is also a weakening of the values relating to succession of the family farm.

> "Some of them are prepared to see it as a business and if none of their family wanted to continue it they'd sell like you would if you owned a business making boots or something."

It was felt that unlike many other regions in Australia there were quite a few new entrants to the industry. While some of these were farm successors, many were people entering farming after contracting or leasing land, or those with off-farm jobs.

Within the region there is a bimodal distribution of farms, with one group from 200 hectares to thousands of hectares; and the other less than 50 hectares. The smaller structure of the farms and the close proximity of the area to Hobart has presented opportunities in terms of diversification, as part-time farmers have been able to purchase properties and develop them while still maintaining their off-farm employment. Without the supplementary income, many of these smaller farms would not be viable in their own right, or would require significant capital investment to make them viable farms.

> "People that have tried to make a full time living on less than 200 (hectares) have usually had a battle and you find them selling up. Even with sections of orchard and even with a bit of off-farm income have tended to have a battle doing it. So you really want to be more than 200 hectares and full time and even some of those people have got other jobs, like contract heading businesses or they do a bit of contract work of one sort or another, ploughing, cultivation, trucking."

While some of these people were open to new ideas due to their lack of experience in agriculture, they were also less likely to succeed.

There is some leasing of land, both as entire properties or as fields for individual crops. In some cases this has been used as a stepping stone for entry into farm ownership. Sometimes this has started with machinery contracting and then moved into leasing of land, leading to the establishment of a significant agricultural business. The ability to share-farm or lease land has allowed the matching of people skills with water and land resources. Although there was an initial reluctance for landowners to lease land, charges for water rights motivated people to seek share-farmers or leasees to make better use of the water rights.

Concurrent with diversification there has been an upgrading of farm planning and business management skills among producers. In addition to the Whole Farm Planning course instigated by the Landcare group, other local groups such as those supported by consultants have obtained funding to upgrade business management skills. Many producers borrowing funds from financial institutions have also been required to develop a whole farm plan.

The availability of locally skilled labour has supported diversification in the region. There is a growing number of people within the region, plus students and others that are interested in working at appropriate times of the year.

> "We've got some people in the district who've made almost a career out of casual work on these kind of crops. There are some of the farmers that have only got small farms themselves that are willing to go and work for other people, either bringing their machinery or just turning up for a days work."

Efforts to obtain labour from outside the district, or without a background in agriculture, have been unsuccessful. Some of the contracting firms have regular employees who work do harvesting or planting, but are paid for by the landowners.

Transport has been an impediment for agribusiness firms based in the north of the state. Some have addressed this by asking producers to bear part of the transport burden. Product quality is also affected by transport time. In the case of peas for freezing, there has been some discussion of the possibility of hosing them down near Colebrook on the way to Devonport.

The development of the region has not all gone smoothly (it took 20 years to get the dam in). Often there have been minor problems, such as crop failures, a company pulling out or the government changing its policy.

> "The association has generally been fairly effective in lobbying government and, to some degree, the companies to change their strategies."

5.2.2 Derwent Valley

The history of agricultural diversification in the Derwent Valley

Up until the end of World War II, the Derwent Valley's agriculture was predominantly sheep and wool production. There were some isolated pockets of horticultural activity such as hop production, raspberries, blackcurrants and apples. After the war, soldier settlers became a significant part of the Derwent Valley, settling on dairy blocks that were created around Ouse and Hamilton. The 1950s and 1960s were buoyant times with both grazing and horticulture providing acceptable returns, allowing farmers to employ labour and reinvest in agriculture. In the 1970s a number of intensive industries declined. Grazing became the dominant agricultural activity and has remained so since that time.

In the 1970s the berry industry, once producing 3000t for jam, began to decline. In the 1990s it is only a minor sector. The apple industry also fell by the wayside as a result of

lack of investment, inappropriate varieties for export markets and a small scale of operation. Changing markets and competition meant that many growers in the Derwent Valley had the wrong varieties to be economic, the apples were unsaleable or saleable only at very low prices. Trees were bulldozed out and the land either converted back to grazing or some other use.

Improvements in the efficiency of hop production in the late 1970s led to a domestic oversupply, forcing many growers to direct their product to export markets. The hop industry experienced a major restructuring leading to a concentration of production to the current six producers, from the original 150. One of the major producers was Elders IXL, which owned Carlton United Breweries. While hop production was a natural extension of Elders' brewing business, the company was not well placed to deal in the world hop trade. In 1988 the world's leading hop merchant, John I. Haas became aware of the Tasmanian industry and its potential strategic importance, and purchased Elders' operation.

This restructuring had a significant impact on the 150 exiting growers and their associated rural communities but there have been benefits. The new owner of the industry is using the Tasmanian growing region to manage the risk associated with its reliance on northern hemisphere hop production. This firm is injecting energy and resources into the hop industry through changes in production and processing. It recently invested $5 to $6 million in a new hop drying facility. The hop industry is now the most dominant form of horticulture in the valley.

Originally dairying was centred around the Ouse/Hamilton district in the soldier settlement blocks, supplying the town milk market. Flood irrigation schemes from the Derwent and the Ouse were established and dairying remained viable for some time. Declining markets in the 1970s required greater economies of scale, and many dairy farmers found themselves not making head way. This, combined with a reluctance for offspring to continue the family farm, led to many small farms being consolidated or converted to other enterprises. Currently there are three dairies in the Ouse district, one large and two small.

Following the decline in other industries, wool production became the dominant enterprise for many years in the Derwent Valley, being a profitable and stable industry until the crash of 1988. Woolgrowers in the region were slow to react, anticipating a turn around in the wool market. Ten years on, prices have shown no sign of improving.

Since this time a number of growers have diversified into poppy and potato production. Poppies are a major crop for the region and in recent years some landowners have purchased 40 ha centre pivots irrigators. Seed potatoes and processing potatoes are grown through contracts with Simplot or McCain, or by leasing land to a potato grower. Onion and other vegetable seed crops are grown in the district. Pyrethrum was grown between the mid-1980s and 1990s but the industry withdrew from the area because of unreliable production. The essential oil industry was also a major player in the region but this has declined in recent years due to poor yields, slow payment and a loss of grower confidence in the industry. Plantation forestry is a relatively new enterprise, adopted by many landowners in the region.

In 1994 the Derwent Valley Business Enterprise Centre (DVBEC) ran a "Future Directions" conference. Future opportunities for regional development were identified. Out of this came the Derwent Valley Productivity Group. Through the DVBEC, the productivity group obtained funding from the Rural Industries Research and Development Corporation to evaluate diversification opportunities in the region. A report commissioned by agricultural consultants Davey and Maynard identified potential crops, and groups were formed to progress the introduction or expansion of these crops in the region.

Many opportunities for diversification were identified. The major change resulting from this research has been the establishment of a small number of cherry orchards to meet mainland markets at the tail end of the season. In one case this was done through a leasing arrangement, where one farmer approached another to lease 40ha of suitable land for a cherry orchard. The cherry grower established a company, with a range of investors, and employed a specialist management group to run the production system.

> "I think the farmer (landowner) who was very reluctant to do it at the outset is now very happy that he has done it that way. He is getting an income from the rental . .... It's in an independent production unit, within a farm boundary."

There are also examples of individuals establishing cherry orchards with the aim of developing their own expertise in cherry production.

Some diversification in the region has been a result of specialist producers seeking to lease suitable land for crop production. Since the late 1980's, local farmers have been leasing land for onion seed production. In the early 1990s some specialist cropping farmers from within the region, and from outside the region, began leasing land from grazing farmers in the Derwent Valley.

Drivers and impediments to change

Diversification in the Derwent Valley has been accelerated in recent years as a result of the decline in the wool industry, by the entry and expansion of contract crops and by the activities of agribusiness firms in the region. Plentiful supplies of water, a dry summer climate and suitable soils have facilitated this development. Some, however, believe that the level of diversification is far below the potential for this region.

> "We've got a wonderful water resource, we've got plenty of adequate land, I wouldn't say we've go the best land in the world, but we've got adequate land that can be used for other things. And sure there've been great examples of people using it for other things, but not enough, not nearly enough."

There are reports that one of the major impediments to diversification in the Derwent Valley has been a lack of willingness, skills and capital amongst farmers. A level of complacency in the wool industry, built on a history of profit and stability, meant many woolgrowers were not prepared for change.

> "I don't know that they really want to do that (change). I think they'd probably much prefer to grow wool but the bloody price won't allow them to."

Specialist skills are required for crop production, and these are quite different from those required for wool production. In addition, the knowledge and skills required for cropping are also constantly changing.

> "Poppies and potatoes are two different crops and require two different sets of knowledge to grow them properly, and under what sort of economic conditions are you going to grow them? Do you have them in small plots, do you put them under centre pivots or do you have them under the other big sprinklers, how do you do it? There are models now where we're moving a long way from little farmer doing his bit."

> "It just becomes harder and harder for the bloke who's a grazier who wants to change from A to B. Raised bed farming, they say, what the bloody hell's that? The people that are doing it well are moving ahead and these blokes that haven't changes yet are getting further behind. The changes are harder."

The reticence to change is in some cases related to the lack of a successor for the farm business. Some woolgrowers consider themselves to be at the wrong end of their careers to consider major change. The sons leave the farm to obtain an education and then find employment in Hobart, deciding not to return to the farm.

> "Farmers' sons are a bit reluctant to take on this thing that they've seen their father nearly die over. Why would you?... So the farm remains, still doing what it did and it hasn't changed."

The desire to retain land ownership, however, is strong. Farmers are prepared to have high debt levels to maintain ownership, even without a successor identified. This may mean that potentially productive land is locked up, unavailable to those who could use it for diversification. Even those who do decide to sell up, can't.

> "Do we sell out, do they sell out? ..... Maybe that's not so easy either. Finding a buyer is very difficult."

A number of farmers in the Derwent Valley have put their properties on the market without being able to find a buyer at the price they are asking. Some believe that almost all the farmers in the region would be interested in considering selling if a potential buyer approached them. The inability to sell is said to be in part a result of properties being valued at their peak value reached in the late 1980s when wool was booming ($120-150 per dse), rather than their market value in 1999 ($60-80 per dse) when wool prices are significantly down. In many cases landowners (and financial institutions) are not prepared to accept the difference in price because equity levels have been based on the peak property value. At the same time, the devaluation of rural properties has restricted access to the significant levels of finance needed for diversification.

> "So you see, he might find himself trapped in there, but he can't find a way out. You know, he mightn't have the resources to buy the centre pivot to grow poppies, or whatever the opportunity is, so he's really trapped there."

Some feel there is a lack of a leadership in the region, both in leading by example through diversification, and in working together to achieve a mutual goal.

> "If you can get one icon farmer, or one farmer to do it (change) and do it well it'll snowball. You'll then get the neighbour wanting to do it too."

One interviewee summed up the farmer's diversification dilemma:

> "The questions are do I want do it, have I got the money, have I got the skills? And the answer to those are probably no."

At the same time there has been a lack of infrastructure, particularly in processing and marketing. This first impediment adds significant transport costs to the cost of production, and may make crops uneconomic.

> "The economics in vegetable growing are tight too. The margins are tight and the question of being two hundred kilometres away from the processing factory is quite significant when you're talking about tight margins because you've got a truck running up and back which just knocks a big hole in it."

Similarly, the lack of a marketing infrastructure is seen to impede the development of new industries.

> "If we're going to tackle the Japanese or Taiwanese market on cherries then, or even the mainland markets on cherries, we've got to get professional about it. We've got to have packing facilities somewhere. We've got to have storage, we've got to have the person who makes the contacts and makes the deliveries and receives the money and pays the growers. All that's got to happen. At the moment the small cherry growers in the Derwent Valley are sending their cherries to Huonville to be packed down there by one of the packers down there. He's doing a good job, but there is a missing link in our area to do that."

Future issues

Two of the key issues identified for the future of the Derwent Valley were the 'unlocking' of potentially productive land; and the competitiveness of the region in attracting agribusiness firms. Each region is competing with others for contracts from the processing firms. Where markets are not expanding, each region needs to be able to offer some advantage to contracting firms in order to attract and retain them in the region.

> "I don't know what the future holds at all but there is a lot of land in the Derwent Valley that's captured by the grazier on his title which could do other things if it were unlocked."

> "Poppies are holding the whole of the Tasmanian agricultural industry together, very nearly. It's the glue that's holding all these blokes together but the poppy industry will move on too, it will say we demand centre pivots because we know we can guarantee a better crop...."

5.2.3 Cressy - Longford

History of agricultural diversification in the region

Agricultural diversification in the Cressy-Longford region began after the installation of the Cressy Irrigation Scheme in 1965. This followed the construction of the Poatina power station. The scheme was originally put in for drought proofing and to support the grazing industries as the Cressy district is prone to dry summers and lack of water through the summer-autumn period. Initially, 75% of the water was used for pastures and 25% for crops. However, when the grazing industries declined in the 70's and 80's, many farmers stopped using irrigation.

Wool growing became the major industry for the region, as well as prime lambs and beef cattle. Some crops, such as cereals and processing peas, were grown in the district. In the mid-late 1980's processing firms from northern Tasmania began seeking land for the production of vegetable and allied crops (such as poppies) in the Cressy region. People started to expand their irrigation again, resulting in a dramatic period of diversification into mixed farming. The result has been that many properties with access to water for irrigation are now obtaining the majority of their income from intensive cropping.

> "Those that don't have access to irrigation are in a bit of a catch 22 ... There's certainly more cereal growing, but the high return crops are poppies and potatoes and these sort of crops are all really irrigation type crops. Irrigation is really the key."

During the 1980s the water available from the Cressy irrigation scheme was supplemented by water from the rivers, (the Macquarie, the South Esk, the North Esk and the Meander) and by the development of on-farm storage in the 1990s. The Cressy Irrigation Scheme is now approaching full utilisation, with almost all landowners with the potential to irrigate having taken that opportunity.

One interviewee reported that potatoes were introduced into the Cressy region by the younger generation of one particular family.

> "They had water and they had well drained soils and they took the plunge. They demonstrated that potatoes could be grown in the northern midlands."

While other farmers were concerned about production failure, once the first family had demonstrated it could be done, other people followed firstly in the Cressy region, then also in the Northern Midlands and the Fingal Valley.

Crop areas have continued to expand every year since the mid '80s up until the last few years when processing vegetable contracting has plateaued. Crops now grown in the region include those based principally on Tasmania's north coast - processing vegetables (peas and beans) and fresh vegetables (broccoli, cauliflower). Vegetable seed crops, grass seed, buckwheat, poppies and cereals have expanded significantly, and pyrethrum is currently being trialled in the area. Irrigation for livestock production is also undertaken, particularly for milk production, with four major dairies currently in the region. Beef production has remained relatively stagnant. Plantation forestry has expanded around the edges of the districts, with 20 landowners having plantations. Radiata pine is the most common species, followed by eucalypts. Trial plots of blackwood have been established in the region.

The first efforts at intensive crop production were led by a small number of ambitious younger farmers, but more and more it has become an accepted strategy for survival in agriculture.

> "I mean even the biggest properties in the district, that have been in families for generations and have got very little debt, are now expanding into cropping and irrigation."

Most of this expansion has taken place on the best soils. Initially practices from the north-west coast were 'imported' into the region but over time the level of knowledge and skill relating to crop production on these soils and this climate has increased.

Drivers and impediments to diversification

Despite the commissioning of the Cressy Irrigation Scheme in the 1960's and the subsequent provision of cheap water, the uptake of irrigated cropping was slow. One interviewee felt this was partly because of the limitations of the region, and also because of the farmers' lack of experience in irrigated cropping.

> "They were going to convert the Cressy area from predominantly used for grazing into a vegetable production area. And it took a little while to realise that the climate is not as good as the north west coast and they get frosts and things, and the soils aren't as good so the use of irrigation happened very slowly."

> "Farmers didn't have much experience with irrigation so they had to learn how to set up a line of sprinklers and all that sort of thing and so it took a long time despite a fair amount of input from the department of ag. They had field officers providing advice about irrigation designs and that sort of things, but the rate of uptake was still very slow."

Traditional thinking was one of the major barriers to diversification in the Cressy region, but economics (combined with opportunity) gradually turned this around.

> "I can remember when we first started growing crops, a lot of my grazing friends called us Chinamen and all these sort of things - just as a pleasant joke but now they're all into cropping, doing the same. It's just they have been forced into it. I think the reality is now they all realise it. And those who haven't been able to change have either got out or are getting out. And they are not looking towards a long term future in agriculture."

> "A lot of these farmers are coming from grazing backgrounds so there's gaining knowledge to grow these crops needed and that just doesn't happen overnight. It's an ongoing process, a bit of a culture shock to some of them. You know, making the change."

One interviewee felt that members of the older generation who had not diversified were either happy with their current income, had low levels of debt and therefore did not require additional income to service this debt, or simply did not want to make big changes at their stage of life. For younger farmers who wanted a future in agriculture, diversification was a necessity, not a choice.

> "They can see if they want to be in agriculture there is no future in grazing only. You have to supplement the grazing with some cash crop of some sort."

One of the biggest impediments to cropping has been soil types as many are shallow with a clay base and generally waterlog in winter. Another major issue has been the requirement for a large financial investment in plant and irrigation equipment. On the other hand, the demise of the wool industry has meant farmers have found it difficult to service debt due to lack of cash flow. Diversification has presented an opportunity for obtaining cash flow and managing farm debt.

Low levels of education and lack of training in irrigated crop production were initially seen as an impediment to diversification in the region. The general level of education of farmers has increased in the last 20 years with the majority of the younger generation having had a tertiary education. This trend has not been matched in farm employees.

> "I do think where there is a shortfall is probably in experienced and well educated farm workers that are going to be able to take on the challenges of future agriculture because it is going to be more intensive. The young fellas coming out of colleges and so on are very good, but a lot of the farm hands, although they are good workers, they haven't had the education that is going to be required in the future."

Overall, the biggest changes in the region were seen to be the irrigation scheme, the demise of the grazing industry, irrigation from the rivers, the entry of processing companies into the area sourcing crops and then more recently, the expansion of the poppy industry.

> "A lot stems from the demise of the grazing industry. I mean there was a time when family farmers could make a good living just growing wool, and producing a few prime lambs. A lot of these smaller farms on 500 acres were able to put a family of three through boarding school and live comfortably. You just wouldn't dream of being able to do that now. Unless you're in intensive agriculture."

Other changes in the region

Concurrent with diversification has been a rationalisation of properties. Farm numbers have declined as properties have increased in size. Many soldier settlement blocks were too small to be viable and in many cases these have been purchased by neighbouring farmers consolidating their position in agriculture. Some believe there has been a loss of small farm operators in the Cressy region, leading to a polarlisation between those doing well and those doing not doing well. Those doing well appear to be those who have taken on intensive cropping and been able to expand. Those who are solely grazing enterprises are struggling.

In the cropping industries, machinery contracting has expanded significantly and contractors are purchasing more specialised machinery to meet the demand. This contrasts strongly with those relying on livestock production.

> "Those that are basically in grazing enterprises, they really struggle and are not maintaining their machinery and in fact some of them are getting out of machinery all together and just can't afford to have any machinery and they just rely on contractors. There's quite a marked difference whereas every farm use to have a tractor two or three years ago."

Most of the farms in the region are family farms, with the majority not having permanent employees. Nevertheless, there has been a history of seasonal work in the region and there is a good availability of labour from the local towns. Women are being employed during vegetable harvests and shearers are doing other work in the off season.

While in the past there were significant DPI facilities and support for agriculture in the region, these have been reduced in recent years. The number of private consultants servicing the region has increased, and these are used to by a large number of farmers to assist with benchmarking, financial management or specialised projects. There is also a greater involvement of farmers in networks such as Landcare, crop and forestry discussion groups, and Cressy Irrigation Scheme field days.

> "Generally the farmers, there'd be very few farmers these days that are not involved with some group or another in their district. (It) gives them an opportunity to see what is going on."

Some report that diversification has been of benefit to their grazing enterprises, a side-benefit that is not widely discussed.

> "Through our cropping program even with the downturn in grazing, because the cash flow is generated from cropping, we have been able to increase the production of our grazing country by a more rapid turnover of pastures. Having the cash flow from cropping we've been able to maintain the fertiliser level on our grazing country so even though we have been increasing our cropping area and cropping's been the main emphasis, the carrying capacity has increased and the grazing enterprise is more intense than it once was. So one complements the other."

As more and more crops have been grown in the region, both the farmers and the companies have advanced their understanding of production under the specific regional conditions. Initially little was known about sustainable management of the soils, and much land degradation resulted. In recent years, however, there has been a greater emphasis on sustainability in the last few years.

> "There's certainly been a certain amount of mining done on the soils in the area which is not sustainable. A lot of the soils are a light soil, a wind blown soil and if they are abused they are very easily eroded, wind erosion and water erosion."

> "There's better crop rotations, higher rates of fertiliser added, there's more liming and monitoring of soil pH. There's more emphasis going into drainage, a lot more emphasis on minimal till, maintaining soil structure."

Future issues

For the future, the demise of the wool industry is seen to be the main factor continuing to drive the changes towards intensification and diversification. Raised bed technology, combined centre pivot irrigation and improved drainage technology, has the potential to provide multiple benefits by opening up the marginal land such as the duplex soils which are prone to waterlogging, and by extending the growing season.

> "Because the soils are shallow and clayey and waterlogged in winter, ... most of the cropping had to be spring cropping, planted in late or into early spring. There was a very narrow window of opportunity to get crops in, and then farmers relied on irrigation to finish them off. So farmers were limited to what they could physically handle in that narrow period. Now with further irrigation and these raised beds, and also there is other types of drainage, underground drainage and so on, farmers can increase their autumn and winter cropping, without needing more machinery. So it spread the workload, and is quite a major breakthrough for this area. And that goes for nearly all the midlands."

> "That's really going to turn this district around because it is already and I think in the next few years it will just be standard practice. And that will open up several thousand more hectares of cropping country."

Economies of scale are also being improved through the introduction of centre pivot irrigation.

> "There's still quite a bit of non arable country that is only suited to running sheep and growing wool so there will always be a grazing industry here, but it will just be less and less important. And probably more specialised. The wool growers will become more specialised in producing fine wool and the prime lamb producers will be specialist lamb producers, rather than mixed farming, mixed grazing I should say."

Sustainability will be a major challenge for the future. In the Cressy region salinity is already a major issue and is likely to continue to be one well into the future.

> "The pressure is going to be on more and more continual cropping rather than in the past we have sort of cropped a paddock for 5 or 6 years and then spelled it for 5 or 6 years. I think the pressure is going to become more fixed to long spells of cropping and less pasture so the importance of sustainability is paramount."

> "There wouldn't be a farm in the district where there wasn't some areas of salinity, salt. There has been some very good monitoring work done in the area, and there is quite a bit of work done with areas fenced off as so on, but it is something you have to watch for the future, especially with the increased irrigation."

Summary

The three case studies described here had much in common yet they had different pathways of agricultural development. These are summarised in Table 4.

Table 4. Summary of diversification processes in three Tasmanian regions

Coal River Valley

History

- cropping history to 1920s
- livestock dominating in 1950s
- dam lobby group 1967
- peas, poppies
- Craigbourne dam 1986
- essential oils, canola
- wool market crash 1989
- vegetable seeds
- vines, stone fruits
- mixed farming 1990s
- 1999 highly diversified

Drivers

- water
- farmer keenness
- research input
- 'courting' of contracting firms
- Coal River Products Assoc.
- Landcare group
- leading lights
- history of dryland cropping
- variety of entrants
- part-time farmers
- off-farm employment
- smaller farms
- leasing of land
- skills up-grading
- seasonal labour supply

Impediments

- transport costs to north
- failures
- rate of govt. action

Derwent Valley

History

- to 1940s horticulture
- after 1940s dairying
- 1950s and '60s buoyant
- 1970s decline of horticulture and dairy
- 1970s hop shake-up
- rise of wool production
- poppies, onion seed
- pyrethrum, essential oils
- 1989 wool market crash
- potatoes, seed potatoes
- plantation forestry
- cherries
- 1999 moderately diversified

Drivers

- farmer group
- entry of agribusiness firms
- water, land
- climate
- research
- wool crisis

Impediments

- wool crisis
- farmer willingness
- farmer skills
- access to capital
- lack of successors
- land market
- over-valuation of property
- leadership
- processing infrastructure
- marketing infrastructure
- 'locked-up' land

Cressy-Longford

History

- dairying, crops and stock
- irrigation scheme 1965
- livestock production
- wool production
- young farmers try new crops
- 1980s rivers used to irrigate
- agribusiness firms enter
- vegetables, poppies
- cropping infastructure builds
- 1989 wool crisis
- vegetable seeds
- farm forestry
- centre pivots
- 1999 highly diversified

Drivers

- irrigation scheme
- wool crisis
- rising education levels
- debt
- machinery contracting
- service industries
- Landcare
- raised-beds
- centre pivots
- the next generation

Impediments

- lack of debt
- wool growing culture
- knowledge
- capital investment
- soil types
- sustainability

These case studies show that while many drivers and impediments contribute to agricultural development, only some of these can be influenced by local action. These include the formation of grower groups for marketing, training and lobbying. Such groups can make a

co-ordinated approach to agribusiness, as has the Coal River Products Association. Support for flexible land tenure arrangements, such as leasing of land or joint ventures, can provide a means of reducing risks for landowners with low levels of experience in crop production. It can also encourage the development of expert skills among tenants, who may ultimately become landowners within the region. The development of an infrastructure that supports diversification is another possible strategy. This may mean developing specialist machinery contracting and consulting services, marketing support, access to capital, processing facilities and a reliable casual labour force. The production risk associated with new crops could be reduced through information provision, training, research and communication. In addition, specific programs could be established to support the development of leadership skills among agriculturists.

5.3 Discussion and conclusions

The results of the case studies demonstrate the different paths agricultural development can take, the time required for change, and some of the critical driving factors in bringing about change. In each of these cases, the supply of water has been critical to the development of the region. Water supply, however, has not necessarily led to rapid agricultural diversification, as indicated in the Derwent Valley and Cressy regions. Economic forces, such as falling commodity prices, changing market requirements and industry restructuring, have also played an important role in regional development. The role of contracting firms in diversification must be recognised, as well as the activities of rural entrepreneurs. Farm families have responded to these circumstances in different ways, with some leaving, and some staying. Many of those who have stayed have been able to do this by responding to these forces in a positive way, whether by good fortune or good management.

What does this mean for future diversification in the Northern Midlands and Fingal Valley? Provided water is available in the Northern Midlands and Fingal Valley, the conditions for diversification are similar to many of those in each of the three study regions. The region is suffering from falling commodity prices, which may, or may not, act as a catalyst for change (as it hasn't in the Derwent Valley). Access to capital is a major concern for the region as local employment opportunities are few, and both regions are relatively distant from major urban centres. The location of the regions also reduces the likelihood of the entrance of people from a non-farming background into the region. This reduces the opportunities for the introduction of new ideas and approaches. On the other hand, the region is also quite highly diversified, with most farmers (with water) having experimented with one or more crops. This provides a foundation of skills and experience for diversification into less traditional crops. Parts of the region are as close to Cressy in terms of their proximity to processing firms, other parts are a similar distance to the Derwent Valley and Coal River Valley. This may mean processing firms will not play as major a role in the study regions as they have in Cressy.

While there is strong community spirit in both the Northern Midlands and Fingal Valley regions, there is no collective group seeking to further develop the agriculture within the region. This may slow the rate of diversification when compared with the Coal River Valley. Other services, such as casual employees, agricultural consultants, contractors, education and agribusiness firms are reasonably well provided for in these two regions.

However, the smaller scale of operation for particular crops combined with the distance from main production areas may mean it is difficult to obtain top quality machinery contractors at critical times. Finally, a wool growing culture is likely to predominate in the region and reduce the level of interest in enterprise diversification, as has been the case in the other regions studied.

6. Constraints to diversification

6.1 Introduction

This chapter details the comments made by participants in focus groups held in Longford, Campbell Town and Fingal on August 1999. The aim of these meetings was to explore the topic of enterprise diversification with farmers, agribusiness and consultants. Questions related to what diversification had occurred in each district, why had this occurred and what were farmers looking for when considering diversification alternatives. The results of the focus groups are detailed. These are then discussed in terms of their implications for diversification in the region.

6.2 Constraints to diversification in the Northern Midlands and Fingal Valley

6.2.1 Longford

The Longford focus group was held on August 24, 1999. Participants included two farmers, eight agribusiness representatives and five consultants (including DPIWE).

Participants reported the major change in the region in the last 10 years had been the move from traditional wool based enterprises to cropping.

> "Cropping has definitely increased in the area. Cropping first started out in the four regions - NW Coast, Mersey, Deloraine, Hagley. The region here was the most unreliable up until there was more efficient harvesting and when water was made available then it (the area) was more reliable. The area now is more favourable."

Most of this increase in cropping had been the result of the availability of water and the entry of contracting firms into the region, with only two examples of enterprises developed by individual landowners. The main crops to expand into the region were poppies, potatoes, vegetable seed and vegetables for processing. High yielding grain crops began to be grown. The increased range of crops was resulting in more efficient use of machinery and a significant investment on irrigation equipment, particularly centre pivots. Potatoes were seen as the crop that paved the way for the others:

> "Taters (potatoes) had a great impact on the region and farms. They caused a lot of infrastructure changes and cropping increased."

> "There is not a lot of capital outlay when growing the different crops. Those going from peas to poppies, the expertise hasn't had to radically change."

Some felt, however, that this process of diversification had been "frighteningly slow", possibly because of an expectation among farmers that wool prices would improve. There had also been some failures – both with individual crops, and with industries. Game meat production had taken off in the first round of diversification, but it had not been sustained. Garlic crops had been tried but failed. And the essential oil industry had come and gone.

"Trying to do too much can be a problem rather than doing things well."

"With the diversification thing, many have been caught and swept away - they have jumped in and done things and been burned or worse."

"There is a lot of old money in the Midlands that was made very easily and inherited very easily and there is a mindset that people don't want to change."

Some of the key drivers for diversification by farmers were profitability in terms of gross margins and return on capital invested. Working against this was a preference for continuing on with past activities, particularly among older farmers.

"The big thing with diversification is age. As you get older you become less interested in being brave and diversifying. You tend to like to watch the younger farmers dive in. They can all use computers and can produce models."

"Existing debts need to be serviced and with the downfall of existing on farm industries farmers may be forced into diversifying and when they do enter into it, they realise the profitability."

"One of the biggest drivers is concern for their own welfare. People with substantial properties are used to having two crops wool and grain - they have had to have a complete turn around in the last 15 years."

The region has also been well supported with contracting firms, consultants and other service providers. Contracting firm representatives reported that when they were seeking additional land area, the region had advantages in terms of greater economies of scale, irrigation infrastructure, farmer commitment and skills, farmer openness to new approaches, suitable land, low pest burdens, fresh ground and opportunities for spreading the risk of production.

"All the diversification has involved greater soil inputs and farmers having greater awareness of the soil. Those in the Midlands are more willing than those on the northnawest coast."

"Growers have been prepared to educate themselves to what is involved."

"Growers didn't have a mind set on how to grow crops as they were new to it."

"It is a later area for crops for this company. There is a window of opportunity, as there is a longer planting period. It is an important area to help spread the risk."

Participants identified a number of factors that are considered by farmers in assessing the viability of entering into a new enterprise. The major factors were profitability, suitability of land and climate, security of markets, personal capability, risk versus returns and frost. Other issues included the extent to which the crop fitted in with the farm operations, the time frame for return, the availability of contractors and personal preferences. Some of the responses to the question "what are you looking for in a new enterprise" were:

"Knowing what you're doing (using the current expertise that you have) and to not move too far away from this."

"Developing new enterprises as effectively as possible - doing it the best way the first time."

"Organic production takes a certain amount of time, a long period of change before you can actually begin marketing. It's a big risk."

"Knowing the environmental effects on the site and elsewhere and knowing that it (the environmental effects) won't be a dead end street."

"The biggest risk with all these things (in this region) is frost."

"The frost thing is a big issue - that has cost a lot of money this year."

"For a grower looking at different crops, they need to know the area and the climate and the windows of opportunity. And what back up he has to help cope with these things."

"You can diversify into anything but if you don't have the back up and somewhere to sell to then there is no point."

"This farmer is looking at long term options such as poppies. This is a good crop because it is a regulated industry. Pyrethrum is not regulated and could move out of Tasmania."

"Some people just love sheep and grow crops because they have too. Personal requirements are an important factor."

"Some of the crops on the list are frighteningly new and farmers tend to steer away from the long term things like walnuts and truffles."

For the future, the adoption of technologies such as raised beds was seen to have the potential to lead to a huge increase in the potential availability of suitable cropping land. This was supported by the presence of the Southern Farming Systems group for trialing new opportunities. Other issues for the future included the uncertainty of both irrigation licenses and water availability from the rivers. There was some discussion about whether farmers were looking to return to wool production if prices rose:

"It would take a long time before thing could go back as the animal numbers have dropped and it would take a long time to change back."

Suggestions for accelerating diversification in the region included:

- a marketing plan to help farmers market their product and investigate possible crops from other parts of the world;
- an information package on the best diversification options;
- encouraging the contracting firms to assist farmers in managing diversification;
- increased facilities to support new industries;
- networking for joint selling and technical support;
- support for the service providers;

- crop record keeping to provide baseline data for contracting firms;
- provision of basic cropping information to farmers;
- promotion of agriculture to the wider community;
- greater support from government;
- detailed climatic information for the region;
- support for onnafarm water storage;
- more research on crop production in the area, and more farmer support for research;
- promotion of entrepreneurship, particularly in marketing;
- grower education to improve crop production knowledge;
- demonstration of the cost of production to consumers;
- encouraging farmers to adopt quality assurance to improve access to markets.

6.2.2 Campbell Town

The Campbell Town focus group was held on August 25, 1999 and attended by 11 farmers, 3 agribusiness representatives and one consultant.

The decline in the wool industry has had a major impact on the farmers in the Campbell Town region. The main crops mentioned as entering the region over this period were canola, poppies, potatoes and peas. Not all crops, however, have been successful. Much of the expansion has been driven by the entry of contracting firms and contract growers looking for additional area at a time of depressed wool prices. In the case of canola, some interested locals had formed a group to pursue markets for this crop. Some landowners have diversified by selling native timber and establishing plantations on the cleared land.

The majority of farmers at the meeting had diversified into at least two new crops over the last 10 years and some had also expanded the area grown to cereals. The main reasons for diversification had been to improve returns to compensate for falling wool returns or to support the establishment of the next generation on the land, and/or to pursue personal interests in cropping. The remaining farmers had not diversified into alternative crops, with lack of access to water being the principal reason. Many of those who had diversified had experienced crop failures, particularly due to frost and there was little enthusiasm for cropping among the participants. For some cropping was perceived as stressful and possibly damaging to soil, for others stimulating, and for others disappointing.

> "We tried potatoes and anything else we could possibly try. Before wool was doing nicely and we didn't look at those things, but now we need to make a living."
>
> "The things that we have tried, frost has knocked the blazes out of things, but we are still doing things to try and make ends meet."
>
> "We are more interested in cropping rather than livestock which is influencing the way we are going."
>
> "Many have mentioned wool and you soon get sick of cropping. I hate sheep but it is easier than shifting an irrigator at night."
>
> "Diversification for us was not necessarily sparked by wool prices."

> "We diversified because we had to."

Farmers said that when they were considering alternative enterprises they assessed them in relation to a number of factors. Major issues were profitability, frost and risk.

> "I am still happy to grow wool. Of course money is important, but I wouldn't go for high risk crops. I am being conservative and hoping that wool will come back."

> "There is a lot of risk in setting up for large scale cropping with the frost problem. The companies are not interested in small areas."

Other issues reported as important in selecting new enterprises included:

- whether or not the crop could have a dual purpose of either being used on the farm, or being sold as a cash crop: "Lucerne was the first option that I chose as you can either use it for yourself or for selling - a double whammy."
- how the crop fitted with existing operations: "We have invested in large scale cropping and are achieving high yields already with cropping. High value seed crops are the easiest way to go for us because we already have the machinery."
- personal knowledge and experience in growing the crop: "High value crops were also chosen as we know how to grow them and to do any more would be a bonus."
- the extent to which the crop had been proved in that region;
- access to expertise and support: "In setting up a new enterprise there needs to be support and expertise of the field officers. This increases the confidence levels to achieve outcomes and infrastructure."
- the level of capital outlay required; and
- the level of stress involved in growing and marketing the crop. "The stress levels in cropping are higher and it requires more management."

In terms of future diversification, there was a strong feeling among participants that if wool prices were to improve, cropping would become much less attractive.

> " If wool bounced back then I would keep cropping but it would be reduced."

Other barriers to future diversification were lack of water (and lack of action on lack of water), the limited finances of farmers, lack of markets for vegetables, uncertainty in relation to water rights and the price of water.

Strategies suggested for accelerating diversification in the region were:

- reducing freight costs across Bass Strait, to make Tasmanian processed vegetables more competitive;
- widespread adoption of genetically modified organisms to take advantage of efficiency gains;
- formation of a farmer corporation or cooperative for marketing produce;
- learning from the experience of mainland producers;
- access to water;
- streamlined government processes;
- support and specialist information to farmers from the service industry;
- networking;

- a better understanding of the long term sustainability of irrigation in the region;
- access to independent advice; and
- education of growers in crop production.

6.2.3 Fingal

The Fingal focus group was held on August 26, 1999 and attended by 13 farmers and one representative of agribusiness.

The shift from principally a wool and beef production in the Fingal Valley to a combination of livestock and cropping started about 15 years ago. Poppies were grown in the region in the '60s but lack of irrigation limited their performance, and the companies went elsewhere for their crops. Over this time, essential oils have also come and gone. Wool prices have declined, accompanied by a decline in farm employment. In the last few years, however, contract potato and poppies have become major new crops in the region, expanding as firms have come looking for additional area. This has been accompanied by an expansion of the irrigation infrastructure with centre pivots "popping up everywhere ....giving us greater opportunities that we didn't have before."

About half of the farmers in the focus group had diversified into cropping enterprises. Two of these had started growing poppies in the last four years, the other three had been growing crops for more than 20 years and were growing a range of crops including poppies, potatoes, seed potatoes, lucerne, peas, canola and cereals. Reasons given for diversification were to increase income or as a means of using surplus income to make the property less drought prone. Farmers noted the steep learning curves and increased risk involved in growing new crops: "A lot of mistakes were made and that is still going on with other crops. It is risky and a big learning curve."

The remaining half of the farmers did not report any diversification into new crops – with the exception of one farmer who had tried a new crop without success. Reasons given for not diversifying into crops were a lack of water, unsuitable soils, past failures and waterlogging. Some said their emphasis was on "doing what we are do better" rather than trying new crops, whether this be by improving the efficiency of wool production or better marketing of existing products: "We need to develop strategies to help make our existing enterprises run more profitably."

Farmers said they considered alternative enterprises in relation to a number of factors. Major issues were profitability, long term market security and the suitability of the land and climate for crop production. Other issues included:

- sustainability;
- its fit with existing enterprises and labour availability;
- the background research and development that had been undertaken on growing the crop;
- the capital outlay required;
- the time period before returns would be available;
- the appeal of the crop and "You need to like doing it"; and
- how confident the individual felt about growing the crop or learning to grow it:

"At my age I haven't got a lot of time to start learning and you don't learn things over night. You can't just learn these things and it takes a long time."

"If any company wants to go into an area with a new crop they will provide the expertise...."

" But a bit of knowledge gives you some confidence."

When discussing future diversification, some farmers indicated that entry into new enterprises was not necessarily the most appropriate approach to improving profitability. A better approach was to do what they were doing better.

"The existing enterprises we have got at the moment we have a market for them. A lot of these new enterprises we can't produce. But we can do a lot better now than what we have done in the past - we can squeeze more efficiency out of our existing management."

"We need to develop strategies to help make the enterprise run more profitably. We are just looking at making things more profitable - we might look at putting in more poppies and lucerne in the ground, irrigating and fining up the wool clip. The main drivers are profits and sustainability, but profit is the main driver."

This sentiment was supported by a general agreement that farmers were being 'forced' rather than 'encouraged' into diversification. If wool prices improved, cropping in the region would decline as farmers shifted their emphasis so they could reap the benefits of their more efficient wool production systems.

"Commodity prices are forcing us into diversifying, this is a wonderful beef and wool growing area."

"The quality of wool grown here is of high standard. I am a more livestock person but I am forced into crops because of wool prices."

Water availability and management were two major issues for future diversification. For some, the option of diversification did not exist if access to water could not be improved. For others, better control of flooding would make larger areas of land available for cropping.

"My place is a flood plain and I have too much water. Waterlogging is a big risk. You can spend $30-40K on a crop and then it is gone and so you're that much behind."

Bureaucracy was perceived as making it difficult for farmers to deal with issues, particularly those relating to water. Another concern was the lack of knowledge among contracting firms, contractors and farmers of how to grow crops in the Fingal Valley region.

"To do these sorts of things successfully we need more knowledge. The companies are bringing information down from the north-west coast which is a different set up all together."

The main focus of the strategies suggested for accelerating diversification in the Fingal Valley was that of markets. Farmers were seeking long term guaranteed prices, long term relationships with contracting firms and information on world market trends and prices. Other suggestions included an expansion in infrastructure, water flow management, access to expertise from service providers and access to information on enterprise opportunities.

6.3 Discussion and conclusions

The constraints to diversification by farmers in the Northern Midlands and Fingal Valley are similar to those reported in the literature (Ilbery 1991), (Slee 1986). These are largely focused on the characteristics of the diversification opportunity, including the security of markets. The results suggest that to date diversification has been driven by a combination of individual rural entrepreneurs and agribusiness firms. There is little evidence of government or community support for agricultural enterprise diversification. Many farmers in both regions are reluctant to diversify, seeing it as the equivalent of changing jobs. When opportunities are presented to them, however, they grasp them. This is evident in the increased poppy, potato and pea production in the region. The results demonstrate that there is opportunity to support diversification in these regions through a range of mechanisms focussing from the individual farmer through the agricultural supply chain to local, state and federal government. These opportunities are explored in more detail in Chapter 7.

7. Accelerating diversification

7.1 Introduction

This chapter seeks to identify strategies for accelerating diversification in the Northern Midlands and Fingal Valley. It is the culmination of a series of activities that aimed to identify the barriers and drivers for change, and possible strategies for addressing these. These activities included a review of the literature, focus groups with members of the agricultural community, case studies of diversification in other regions, a review of the current status of agriculture in the region and interviews with contracting firm representatives.

In the first section, the chapter examines the barriers to diversification in terms of the characteristics of the regions' natural resources, its human resources, enterprise options and farm, financial and regional resources. Supporters for diversification are reported in a similar manner. These barriers and drivers are assessed in terms of the impact they could have on future diversification and the ease with which they could be addressed.

Suggestions received for accelerating diversification are listed and then assessed in terms of their ability to address the major barriers. Where there were limited suggestions for addressing the high priority barriers and drivers, additional strategies are proposed. The possible role that different organisations could play in implementing these suggestions is discussed. The chapter concludes with recommendations for implementation of these strategies.

7.2 Barriers and supporters for diversification

This section presents barriers and supporters for diversification in the Northern Midlands and Fingal Valley in terms of natural resources, human resources and the enterprise alternatives. Each of these is evaluated in terms of its potential to accelerate diversification in the region based on the following criteria:

- the extent to which diversification would be accelerated if the barrier was addressed (low - L, moderate - M or high - H), or
- the extent to which the supporter accelerates diversification (low - L, moderate - M or high - H), and
- the expected ease with which the barrier or supporter could be addressed (easy - E, difficult - D, impossible I)

Each of the barriers and supporters presented here is coded according to the above system. For example, a code of MD refers to a barrier or supporter that has the potential to support diversification to a moderate extent and could be addressed with difficulty. Codes with high potential to accelerate diversification that are also considered either easy or difficult to address (HE or HD) are considered a high priority and highlighted in bold. Codes with moderate potential to accelerate diversification that are considered easy to address (ME) are considered a moderate priority and highlighted in bold italics.

7.2.1 Barriers to diversification

7.2.1.1 Natural resources

- Lack of access to water, frost and flood incidence and lack of suitable land limit enterprise diversification. (**HD**)
- Uncertainty of irrigation licences, water availability from the rivers and price of water. (**HE**)
- Raised bed technology presents an opportunity for increasing the availability of land, but this has not been tested in extreme conditions. (LE)
- The fragility of the natural resource base makes it prone to damage by unsustainable production practices (e.g., salinity, soil erosion). (MD)
- Isolation from major agribusiness firms results in high transport costs (HI)
- For some crops, some undesirable weed species are prevalent in the regions (LD)

7.2.1.2 Human resources

Farmers and their families

- Lack of confidence in crop production due to past negative experiences at an individual farm level (e.g., frost, waterlogging) and at an industry level (e.g., essential oils, garlic). (**HD**)
- An anticipation that wool prices may improve, combined with a desire to continue in wool production has lead to a reticence to enter into new enterprises. (**HD**)
- Lack of experience in crop production systems, soil and water management and managing multi-enterprise businesses. (**HD**)
- Older farmers are more risk averse. (**HD**)
- Most farmers prefer to operate independently, avoiding cooperative approaches to production and marketing. (**HD**)
- Lack of entrepreneurial skills among most farmers, particularly in marketing. (**HD**)
- Lack of new entrants from a diverse range of backgrounds (e.g., Coal River Valley) (**HD**)
- Some farmers not willing to lease land for irrigated crop production. (**HD**)
- A reduction in employees on farms has led to farmers taking on all of the management and day to day tasks. This reduces the amount of work that can be done, and the availability of the farmer for training or education. (**HD**)
- The availability of labour on the farm is dependent on the structure of the family: number and age of children, parents and grandparents. Lack of family labour at critical times (due to children being at University, for example) could restrict opportunities for diversification. (**HD**)
- Some farmers have personal preferences for livestock enterprises. (HI)
- Some farmers see cropping or dairying as a lower status forms of agriculture than wool production by some farmers. (HI)
- Major changes in the life cycle of the farm family business (e.g., offspring not wishing to continue in farming, family disharmony) can remove the incentive for change or expansion of the farm business. (HI)
- Some farm families are content to maintain their current level of income and secure the farm for the next generation rather than take on increased debt, increased risk or change their lifestyle. (HI)

- Some farmers are not prepared to take on any more debt, regardless of the returns. (MD)
- Lack of long term commitment to irrigated cropping among wool growers (MD)
- Income demands for the family are also dependent on its structure. Periods of high income demand could restrict access to finance as the needs of the family compete with the needs of the farm. (MD)
- Farms are family businesses, with different objectives and modes of operation to industrial companies. This can make them less able to change. (MI)
- Some firms find some farmers difficult to deal with and avoid doing so. (LI)
- Lack of information on the sustainability of particular enterprises (e.g., soil loss) (LE)

Farm businesses

- Some farm businesses have lack of access to finances due to reduced land values and lowered cash flow. (**HD**)
- Low levels of education and skills in crop production among farm employees (**HD**)
- Over exposure to debt by farm businesses seeking to diversify in a big way could result in significant losses and lowered confidence in diversification as a means of improving profitability (**HD**)
- Lack of on farm water storage (**HD**)
- Other options for improving farm profitability may be more attractive than diversification. These include off-farm employment, improving the efficiency of livestock enterprises, restructuring of finances, cutting family and farm costs. (MI)
- Poor market for farming properties reducing the rate of farm turnover (HI)

Agribusiness contracting firms

- Mixed potential for crop expansion. (**HD**)
- Unwilling to openly discuss future plans. (**HD**)
- Uncoordinated approach to regional development and expansion (**HD**)
- Lack of communication between agribusiness firms (**HD**)
- Many alternative growing regions, with various advantages and disadvantages, are available within the State (**HD**)
- Lack of documented information on the natural and social resources of the regions.(***ME***)
- Farmer resistance to advice from field officers (LD)
- Poor rotations particularly of poppies (LD)

Agricultural and community services

- Lack of a coordinated group for agricultural development in the region (e.g., Coal River Products Association) (**HD**)
- Lack of leadership for the development of agriculture and the regions (**HD**)
- Participation in education, training and group activities appears to be restricted to male owner-managers from about 25% properties in the region. Farm employees, farm contractors, agribusiness field officers and farm women do not participate to the same extent. (**HD**)
- Lack of government support for business planning and market development support for canola (***ME***)
- No overall management plan for managing commercial and recreational harvesting of wallabies and possums (MD)

7.2.1.3 Characteristics of the enterprise options

- Lack of information on the characteristics of the enterprise options (**HE**)
- Least favoured crops are those different to those already grown, that require high capital outlay, do not have secure markets, have high production risks, a long time frame for returns, poor returns, high environmental impact, lack agronomic, market and/or machinery contractor support and which don't fit with the existing farm operations or equipment. (**HD**)
- Lack of information on the costs and benefits of diversification for the whole farm (**HD**)
- Lack of sufficient enterprise options to provide a good rotation and justify the investment in irrigation (**HD**)
- Lack of scientific research and development on irrigated crop production in these areas (e.g., carrots, garlic and perennial crops). (**HD**)

7.2.1.4 Farm, financial and regional resources

Farm businesses

- Some farm businesses have lack of access to finances due to reduced land values and lowered cash flow. (**HD**)
- Low levels of education and skills in crop production among farm employees (**HD**)
- Over exposure to debt by farm businesses seeking to diversify in a big way could result in significant losses and lowered confidence in diversification as a means of improving profitability (**HD**)
- Lack of on farm water storage (**HD**)
- Other options for improving farm profitability may be more attractive than diversification. These include off-farm employment, improving the efficiency of livestock enterprises, restructuring of finances, cutting family and farm costs. (MI)
- Poor market for farming properties reducing the rate of farm turnover (HI)

Infrastructure

- A lack of processing or handling facilities close to the region. (**HD**)
- Lack of a marketing infrastructure outside the agribusiness firms. (**HD**)
- Lack of off-farm employment opportunities that could be used to underwrite enterprise diversification (e.g., Coal River Valley). (MD)
- Uncertain quality and availability of casual labour (MD)
- Potential for disease and weed spread with increased cropping (MD)

7.2.2 Supporters for diversification

7.2.2.1 Natural resources

- Availability of good quality water from major river systems and from some on-farm storage. (**HD**)
- Raised bed technology presents an opportunity for increasing the availability of suitable land for cropping. (**HE**)
- Freedom from particular weed species (**HD**)

- Large area of mostly flat land, allowing economies of scale in farm operations and use of pivot irrigation. (HI)
- Extra heat in summer compared to NW Coast. (MI)

7.2.2.2 Human resources

Farmers and their families

- Increasing educational levels among young farmers and a shift towards a business approach to farming provide a means and incentive for diversification. (**HD**)
- Many farmers willing to lease land for irrigated crop production. (**HD**)
- A number of farming families lead the way in trying out new enterprises in the region. (**HD**)
- Income demands for the family are also dependent on its structure. Periods of low income and excess labour (i.e., children have completed their education could increase access to finance and off-farm work for individual families. (**HD**)
- Farmer experience with agribusiness firms, machinery contractors and irrigated cropping as a result of increased diversification in the region. (**HE**)
- A short history of irrigated crop production in the region means growers are open to new ideas. (MD)
- Individual farmers have personal preferences for cropping enterprises. (HI)
- Major changes in the life cycle of the farm family business (e.g., offspring returning to the family farm) can provide the impetus for diversification. (HI)
- Farms are family businesses, with different objectives and modes of operation to industrial companies. The can make them more able to change. (HI)

Agribusiness contracting firms

- Many agribusiness contracting firms already operating in the region. (**HD**)
- Agribusinesses experienced in the regions, leading to established relationships with growers and experience in crop production. (**HD**)
- Lower pest burdens than other regions for some crops (e.g., vegetable seeds) (**HD**)
- Economies of scale for some crops (e.g., vegetables, poppies). (HI)
- Later growing season presents window of opportunity for agribusiness firms to spread the risk of production. (HI)

Agricultural and community services and infrastructure

- Some farmer groups have successfully initiated new crops and technologies (e.g., canola, Southern Farming Systems). (**HE**)
- Government programs such as Property Management Planning, Prograze and Tasmanian Women in Agriculture are providing support for change in the region. (**HE**)
- The regions are well serviced by consultants, merchandising representatives, agricultural contractors and agricultural advisers. (**HD**)
- Essential oil processing facilities in the Fingal Valley (**HD**)
- A number of agricultural and community activities provide networks for farmers to discuss agricultural change (e.g., Landcare) (***ME***)

7.2.2.3 Enterprise options

- Favoured crops are those similar to those already grown, that can also be used in livestock production, require low capital outlay, have secure markets (usually contracts), low production risks, provide short term profits, are relatively profitable, minimal environmental impact, have agronomic, market and machinery contractor support and which fit with the existing farm operations or machinery. (**HD**)
- Once an initial investment is made, the switch to different crops does not require high levels of capital. (HI)

7.2.2.4 Farm, financial and regional resources

Farm businesses
- Increasing debt levels require servicing, creating an incentive for greater cash flow. (HI)
- Low returns from livestock production have forced many growers to consider alternative enterprises. (HI)

Infrastructure
- The regions have good access to air, road and rail transport. (**HD**)
- Access to a pool of casual labour (e.g., Cressy, Coal River Valley) (**HD**)

7.3 Evaluation of suggestions for accelerating diversification

A large number of suggestions for accelerating diversification in the Northern Midlands and Fingal Valley were identified. Each of these is examined here for its potential to impact on the high priority barriers or supporters identified in the previous section. The potential for each strategy to accelerate diversification in the region is evaluated as high – H, moderate – M or low – L. The probability that it could be achieved is measured in the same terms: high – h, moderate – m and low – l. The strategy's potential to provide short term (one year - 1), medium term (two to five years - 3) or long term benefits (more than five years – 5+) is assessed. Strategies are listed in rank order based on this system. Strategies that do not address high priorities are listed in the following section but without this assessment.

7.3.1 Strategies addressing high priority barriers and supporters

High potential, high probability of occurring

- Develop an information package on the best diversification options (Hh1)
- Provide support for the service providers (Hh1)
- Use existing networks for promoting diversification. Incorporate information about diversification into existing communication channels and training activities (Hh1)
- Provide agribusiness with long term weather records (Hh1)
- Encourage acceptance of field officer services (Hh3)
- Identify ways of improving the availability and reliability of water for irrigation purposes (Hh3)
- Provide clear advice on government water policy (Hh1)
- Provide up-to-date information on the outlook of existing enterprises (e.g., wool) (Hh1)

High potential, moderate probability of occurring

- Provide support for farmers leasing other people's land (Hm1)
- Have a united front for dealing with contracting firms (Hm1)
- Improve communication between companies and field officers to minimise conflict between crops (e.g., brassica seeds and canola) (Hm1)
- Encourage the purchase of the essential oil stihl (Hm1)
- Identify the costs and benefits of diversification (Hm1)
- Provide market access support for possum meat (Hm3)
- Provide agronomic support for new crops (Hm3)
- Develop incentives for contracting firms to work in the region (Hm3)
- Secure the water resources (Hm3)
- Encourage the contracting firms to assist farmers in managing diversification (Hm3)
- Increase the facilities to support new industries (e.g., grain store for canola, essential oils processing plant in Northern Midlands, storing, packing, cooling for fresh vegetables) (Hm3)
- Develop networks for joint selling and technical support (Hm3)
- Obtain greater support from government for agricultural diversification (Hm3)
- Work with Southern Farming Systems (Hm3)
- Encourage firms interested in developing the region to collectively offer a rotation package to farmers (Hm3)
- Provide business planning and market development support for canola (Hm5)
- Provide on-going support for this project (Hm5+)
- Develop entrepreneurial skills of farmers and agribusiness, particularly in marketing (Hm5+)

High potential, low probability of occurring

- Provide financial support for demonstration crops (Hl3)
- Encourage the growers to develop a vision to take to the agribusiness firms (Hl3)
- Explore opportunities for pasture seed production in the region (Hl3)
- Provide agribusiness and farmers with financial support for development of new crops (Hl3)
- Develop a State Game Management Plan (Hl5)
- Support open communication between contracting firms (Hl1)
- Pursue alternative sources of finance from private and public investors outside the region for new crop development (Hl3)
- Develop and implement flood management strategies for the Fingal Valley (Hl5+)

Moderate potential, high probability of occurring

- Provide basic cropping information and education to farmers (Mh1)
- Research crop production in the area (Mh3)
- Develop marketing plans to help farmers market their product (Mh5)
- Investigate possible crops from other parts of the world (Mh5+)

Moderate potential, moderate probability of occurring

- Encourage farmer participation in research (Mm1)
- Develop a casual labour register (Mm1)
- Provide incentives for farm labour to participate in training (Mm1)
- Encourage leasing as a way of reducing risk in crop production (Mm3)
- Deliver training and information to all members of the farm family, as close to the farm as possible (Mm3)
- Develop farmer skills in assessment of their land resources (Mm3)
- Obtain local government support for new industries (e.g., farm forestry) (Mm3)
- Explore commercial and environmental opportunities arising from fencing off and managing existing vegetation (Mm5)
- Develop a community vision for the regions (Mm5+)
- Form active grower-driven discussion groups to help identify & develop new enterprises within the region (Mm5+)
- Form "partnerships" with firms to develop new crops and technology (Mm5+)
- Implement farm hygiene policies to protect region from new weeds and diseases (Ml5+)

Moderate potential, low probability of occurring

- Develop a deferred payment loan scheme to provide up front funds for farmers to invest in long term ventures (Ml1)
- Provide support for on-farm water storage (Ml3)
- Facilitate registration of chemicals for speciality crops (Ml3)
- Implement crop record keeping to provide baseline data for contracting firms (Ml5+)

Other suggested strategies

- Promote agriculture to the wider community
- Demonstrate the cost of production to consumers
- Encouraging farmers to adopt quality assurance to improve access to markets
- Trial tree production with council effluent
- Recognise that change takes time

7. 4. Stakeholder roles

There are a number of stakeholders who could each contribute to the further development of diversification in the Northern Midlands and Fingal Valley. These include individual farm families, existing and new farmer groups, agricultural consultants, contracting firms and other agribusiness, machinery contractors, the state government, local government, training providers, research providers, the TFGA and financiers. This section draws on the strategies identified above, and others, to detail the possible role each of these could play in this process. For each stakeholder group, the strategies are listed in order of their potential to accelerate diversification within the regions.

Individual farm families

- Seek opportunities to tap into existing networks that will provide up-to-date information on relevant issues (Hh1)
- Consider the appropriateness of diversification for individual properties. This may be done without assistance, with the support of a consultant or through group forums (Hm3)
- Foster good relationships with contracting firms, supporting open and frank discussion (Hm3)
- Consider options for leasing or share-cropping some land (Hm3)
- Develop the skills of family members and employees that will support diversification. For example the farm women may seek to develop skills to use the internet to gain access to information, the junior male may seek to develop skills in crop management, the senior male may develop skills in negotiating with contracting firms or evaluating soil capability (Hm5)

Farmer groups

- Develop a diversification group to pursue opportunities for the region(s) (Hh1)
- Identify the costs and benefits of diversification (Hh1)
- Have a united front for dealing with contracting firms (Hm1)
- Develop networks for joint selling and technical support (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Encourage the purchase of the essential oil stihl (Hm1)
- Develop incentives for contracting firms to work in the region (Hm3)
- Increase the facilities to support new industries (e.g., grain store for canola, essential oils processing plant in Northern Midlands, storing, packing, cooling for fresh vegetables) (Hm3)
- Pursue alternative sources of finance from private and public investors outside the region for new crop development (Hl3)
- Develop a vision to take to the agribusiness firms (Hl3)
- Explore opportunities for pasture seed production in the region (Hl3)
- Encourage leasing as a way of reducing risk in crop production (Mm3)
- Form active grower-driven discussion groups to help identify & develop new enterprises within the region (Mm5+)
- Form "partnerships" with firms to develop new crops and technology (Mm5+)
- Implement farm hygiene policies to protect region from new weeds and diseases (Ml5+)

Agricultural consultants

- Provide high levels of support for farmers considering diversification (Hh1)
- Provide strategies for improving wool profitability (Hh1)
- Provide specialist advice to service providers as well as farmers (for example machinery contractors, local government) (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Encourage leasing as a way of reducing risk in crop production (Mm3)

Non-contracting firm agribusinesses

- Encourage consideration of options for diversification (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Explore opportunities for pasture seed production in the region (Hl3)

Contracting firms

- Improve communication between companies and field officers to minimise conflict between crops (e.g., brassica seeds and canola) (Hm1)
- Assist farmers in managing diversification (Hm3)
- Work with other firms to collectively offer a rotation package to farmers (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Communicate with other firms openly (Hl1)
- Implement farm hygiene policies to protect region from new weeds and diseases (Ml5+)

Machinery contractors and farmers leasing land

- Further develop skills in crop production (Hm5)
- Develop codes of conduct for contracting and leasing (Ml3)
- Implement farm hygiene policies to protect region from new weeds and diseases (Ml5+)

State government – Department of Primary Industries, Water and Environment

- Develop an information package on the best diversification options (Hh1)
- Provide clear advice on government water policy (Hh1)
- Provide up-to-date information on the outlook of existing enterprises (e.g., wool) (Hh1)
- Use existing networks for promoting diversification. Incorporate information about diversification into existing communication channels and training activities (Hh1)
- Coordinate information and support for agribusiness, such as provision of long term weather records, improving communication between companies and field officers to minimise conflict between crops (e.g., brassica seeds and canola) (Hm1), encouraging the contracting firms to assist farmers in managing diversification (Hm3), encouraging firms interested in developing the region to collectively offer a rotation package to farmers (Hm3), support open communication between contracting firms (Hl1), implement crop record keeping to provide baseline data for contracting firms (Ml5+)
- Identify ways of improving the availability and reliability of water for irrigation purposes (Hh3)
- Identify the costs and benefits of diversification (Hm1)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Provide the latest information on crop production and sustainability to all information and training providers (Hm3)
- Provide agronomic and sustainable management support for new crops (Hm3)
- Develop a State Game Management Plan (Hl5)
- Develop and implement flood management strategies for the Fingal Valley (Hl5+)
- Facilitate registration of chemicals for speciality crops (Ml3)

State government – Department of State Development

- Provide market access support for possum meat (Hm3)
- Provide support for increasing the facilities to support new industries (e.g., grain store for canola, essential oils processing plant in Northern Midlands, storing, packing, cooling for fresh vegetables) (Hm3)
- Openly and vocally support agricultural diversification and rural development
- Provide business planning and market development support for canola (Hm5)
- Develop entrepreneurial skills of farmers and agribusiness, particularly in marketing (Hm5+)
- Provide financial support for demonstration crops (Hl3)
- Develop a deferred payment loan scheme to provide up front funds for farmers to invest in long term ventures (Ml1)

Local government

- Facilitate the development of diversification group(s) for the region(s) (Hh1)
- Seek funding to facilitate diversification projects in the Northern Midlands and Fingal Valley (e.g., Rural Plan, Natural Heritage Trust, Rural Industries Research and Development Corporation) (Hm3)
- Encourage the purchase of the Longford essential oil stihl (Hm1)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Develop incentives for contracting firms to work in the region (Hm3)
- Secure the water resources (Hm3)
- Provide support for increasing the facilities to support new industries (e.g., grain store for canola, essential oils processing plant in Northern Midlands, storing, packing, cooling for fresh vegetables) (Hm3)
- Develop and implement flood management strategies for the Fingal Valley (Hl5+)
- Develop a casual labour register (Mm1)
- Obtain local government support for new industries (e.g., farm forestry) (Mm3)
- Develop a community vision for the regions (Mm5+)
- Develop a deferred payment loan scheme to provide up front funds for farmers to invest in long term ventures (Ml1)
- Provide support for on-farm water storage (Ml3)

Training providers

- Provide support for farmers leasing other people's land (Hm1)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Deliver training and information to all members of the farm family, as close to the farm as possible (Mm3)
- Provide basic cropping information and education to farmers (Mh1)
- Provide incentives for farm labour to participate in training (Mm1)
- Develop farmer skills in assessment of their land resources (Mm3)

Research providers

- Provide the latest information on crop production and sustainability to all information and training providers (Hm3)
- Work with Southern Farming Systems and other existing farmer groups (Hm3)
- Research crop production in the area (Mh3)
- Investigate possible crops from other parts of the world (Mh5+)
- Encourage farmer participation in research (Mm1)
- Explore commercial and environmental opportunities arising from fencing off and managing existing vegetation (Mm5)

TFGA

- Lobby to secure the water resources (Hm3)
- Know where to direct farmers for information (Mm3)
- Support woolgrowers in coping with change (Mm3)
- Encourage sustainable management (Hm5)

Financiers

- Provide support for farmers leasing other people's land (Hm1)
- Provide support for increasing the facilities to support new industries (e.g., grain store for canola, essential oils processing plant in Northern Midlands, storing, packing, cooling for fresh vegetables) (Hm3)
- Understand the issues facing farmers (Hm3)
- Understand the costs and benefits of diversification (Hm3)
- Support the implementation of risk management strategies on farms (Hm3)

To obtain greatest benefit from this report, it is suggested that a wide range of stakeholders are brought together to review the barriers and supporters for diversification in the region. These should be evaluated against agreed criteria. Individuals and teams could then be formed to further develop plans for implementing the highest priority strategies. These teams could report to an overall steering committee that is established to further this project over the long term.

7.5 Discussion and conclusions

There are many social and economic barriers to diversification in the Northern Midlands and Fingal Valley. Three of the major factors are lack of access to water, a lack of access to finance and a desire to continue to focus on wool production. Supporters for diversification include the already high level of cropping in the region, demand for land by contracting firms, poor returns from livestock enterprises, and a desire among farmers to remain in farming. This chapter details a wide range of drivers and supporters for change, plus strategies for accelerating diversification. Some can be implemented easily and in the short term, but most require a medium to long term effort and as such, as high level of commitment from stakeholders.

The chapter concludes by highlighting the role that different stakeholders can play in accelerating agricultural diversification in the region. It is suggested that local governments facilitate rural development groups to lead this process, supported by the state government, agribusiness, farmer organisations and service providers. The role of local governments would be to harness the energies of these stakeholders in pursing rural development within the regions. The keys to the success of this approach will be a commitment to regional development from the state and federal governments, strong leadership from local government, and above all, a desire by the local farming communities to pursue change.

To obtain greatest benefit from this report, it is suggested that a wide range of stakeholders are brought together to review the barriers and supporters and evaluate them according to their own criteria. Individuals and teams could then be formed to further develop plans for implementing the highest priority strategies. These teams could report to an overall steering committee that is established to further this project over the long term.

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Appendix 9.1 Project information sheet

The development of strategies for accelerating diversification in the Northern Midlands and Fingal Valley

Information Sheet

Chief investigator: Amabel Fulton, Rural sociologist, TIAR .

What is the purpose of the study: To develop strategies for overcoming barriers to diversification in the Northern Midlands and Fingal Valley

What are the aims of the study: To characterise the history of rural development in the Northern Midlands and Fingal Valley, to identify barriers to farm enterprise diversification in the region and from these, to develop strategies for accelerating farm enterprise diversification.

Who is funding the research? The project is one of a number being undertaken by the Department of Primary Industry, Water and Environment, the Northern Midlands Council and Break O'Day Council. The project is funded equally through federal and state agencies to assist the region in developing strategies for preparing for drought.

Who is being interviewed? Key people in the Derwent Valley, Coal River Valley, Cressy Northern Midlands and Fingal Valley regions who are knowledgeable of development in their region, and/or who may potentially be involved in farm diversification in the study region.

What questions are being asked? Key people in the Derwent Valley, Coal River Valley, Northern Midlands, Fingal Valley and Cressy will be asked about the history of rural development in the region and the driving forces for and against change.

How will the interview proceed? You will be given a copy of this information sheet to keep. You will be asked to give your consent to taking part. A trained interviewer will ask you a series of questions at a time a place suited to you. This will probably take up to an hour, depending on how much information you wish to provide.

How do I know the results will be confidential? Notes will be taken during the interview and these will be used as the basis for data for the review. This data will be coded so that your identity remains confidential, and the notes will be stored in a locked cabinet at the University of Tasmania.

Will my comments be anonymous? Yes. Your comments will appear in the final report, but to ensure anonymity they will not be associated with your name. If after the interview you have any concerns about the comments you have made, please contact your interviewer and ask them to remove them from your interview notes.

Can I withdraw if I want to? Before you are interviewed, you will be asked if you give your consent to being involved. If you do, you will be required to sign a consent form, to demonstrate your willingness to participate. You will be given a copy of the consent form to keep. If at any time you wish to withdraw from the review process, you are free to do so by contacting the chief investigator.

What will happen to what I say? The findings of the study will be reported to the steering committee of the Tasmanian Regional Drought Initiative. This committee will then decide on how the information will be used. Participants will be provided with a summary of the findings upon completion of the final report.

Contact persons For further information about the review, contact Amabel Fulton on 03 62262651 bh; 03 62311419 ah; Amabel.Fulton@utas.edu.au; 03 62 267450 fax, or c/-TIAR, GPO Box 252-54, Hobart, 7001.

What do I do if I have a concerns or a complaint? If you have any concerns of an ethical nature or complaints about the manner in which the project is conducted, contact Ms Chris Hooper, at the University of Tasmania on 03 52 262763. This project has received ethical approval from the University Ethics Committee (Human Experimentation).

The development of strategies for accelerating farm enterprise diversification in the Northern Midlands and Fingal Valley

Consent form

1. I have read and understood the 'Information Sheet' for this study.
2. The nature and possible effects of the study have been explained to me.
3. I understand that the study involves a semi-structured interview or focus group (cross out whichever is inappropriate) about the process of rural development and diversification in this region.
4. I understand that all research data will be treated as confidential.
5. Any questions that I have asked have been answered to my satisfaction.
6.* I agree to participate in this investigation and understand that I may withdraw at any time without prejudice.
   I agree that research data gathered for the study may be published provided that I cannot be identified as a subject.

   Name of subject .....

   Signature of subject ..... Date .....

7.*
   I have explained this project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

   Name of investigator .....

   Signature of investigator ..... Date .....

Appendix 9.2 Semi-structured interview schedule

Introduction

This project aims to explore how rural development has proceeded in three regional areas in Tasmania, the Coal River Valley, Cressy and the Derwent Valley. The purpose is to develop strategies for accelerating diversification in the Northern Midlands and Fingal Valley. This involves understanding why an agribusiness is reluctant to expand in this region, or why farmers are nervous about taking on opportunities. Once these barriers are known, strategies can be developed to address them. An understanding of how opportunity adoption has been accelerated in other regions, and the difficulties which have been encountered during this process, will also assist in the development of a model for accelerating diversification and drought.

The results of the three preliminary studies of diversification in Tasmania will be used to construct a model for diversification in the Northern Midlands and Fingal Valley. This model would be tested against the views of key people in the region in a series of focus groups.

Research questions
1) What has been the process of rural development in the region?
2) What have been the driving forces for and against change?

Interview questions:
1) Could you describe the region's agricultural sector
    -physical sector
    -current industries
    -human resources
    -social structure
    -economy
    -environment

2) What is the agricultural history of the region?
    -historical events and dates
    -major changes which occurred
    -forces for change
    -impediments for change

Appendix 9.3 Survey of workshop participants

Summary of results:

Northern Midland and Fingal Valley local networks and support services

In addition to conducting the focus groups, Amabel Fulton and Jane Weatherley are preparing a brief description of agriculture in the area, including the local networks and support services. To assist in this, we would appreciate farmer, agribusiness and government responses to the following questions.

What local, industry or government groups/associations are you, or members of your family, part of? (For example: show society, public speaking, Women in Agriculture, Landcare, discussion group etc)

Local Network Group and Information Sources	Members (result from survey)
Landcare	7
UECG	3
Triple P	3
Midlands Agricultural Society	3
Top Crop	2
Farmwide website	2
Women in Agriculture	1
Bush Web	1
Tasmanian Farmers and Graziers Association	1
Northern Midlands Council	1
Campbell Town Forum	1
Woolmers Board	1
Heritage Highway Museum	1
Drought Initiative	1
Agfest	1
Prograze	1
Eskleigh Home	1
Perth Cemetry Trust	1
American Association for the Advancement of Science	1
Australian Society for Reproductive Biology	1
Launceston Show Society	1
Tas Country	1
Agnotes	1

The next question aims to look at sources of agricultural and related information in your region. Tick the column for how often you, or someone from your family or business, talk to the following about agriculture?

Networks and support services	Not at all	Daily	Once a week	Once a month	Twice a year	Once a year	Total using
Local government	1		1	2	4	1	8
Roberts		1	3	4	1		9
Websters	2			3	3		6
Serve Ag	2			3	1	1	5
Simplot	4		1	2			3
Tasmanian Alkaloids or Glaxo	2		3	3			6
Landcare			2	3	2		7
Women in Agriculture	5				1		1
A machinery contractor		1		1	6		7
An agricultural consultancy	1			1	1	1	3
Farmers		2	7				7
Department of Primary Industry			1	3	4		8
Members of the family			1				1
Ian W Richards				1			1
Total	17	4	19	26	23	3	-

What is your occupation? 9 farmers, 1 Government employee
Are you male? 9 .or female? 1

Other comments? n/a

9.4 Focus group procedure. Information provided to participants

Purpose of this session (see information sheet)

- what doing
- why
- how
- what will happen to the information
- name tags?

Topics to be discussed (see whiteboard)

1. Warm-up:
   Who are you, where do you come from, and what do you do?
   What are you looking for in a new crop, industry or market?
2. What enterprise diversification has taken place in your farms in the last 10 years?
3. What were the driving forces for and against the adoption of new enterprises?
4. What is hindering further enterprise diversification in the region?
5. What is supporting further enterprise diversification in the region?
6. What could be done to accelerate this process?

How will we operate?

Participant's role

- to express views and experience
- to help Amabel keep on time and on track
- to be respectful of other people's views – there is no right or wrong
- treat other people's comments as anonymous

Amabel's role

- to encourage discussion from everyone
- to try and keep the talkers under control, and encourage the quite ones
- to keep the discussion on track
- to finish on time

Jane's role

- to record the main issues as they arise

Before we start:

- diversification = new enterprises or new markets for existing enterprises e.g., contract prime lamb, growing seed for others
- not here to promote diversification – that is the role of the steering committee – our role is to inform them about how to do this
- any questions
- consent forms and tape recording – any problems?

Appendix 9.5 Agricultural production statistics for each region
Northern Midlands and Fingal Valley, year to March 31. 1998

	Area (ha) or number	*se* (%)	% of Tas	No of farms	*se* (%)	% of Tas	Product-ion (t)	*se* (%)	% of Tas
All holdings	430457	*20*	22	401	204	9			
Major enterprises									
Cereals									
Crops and pastures for hay	6693	*37*	12	218	*34.1*	9	24087	*38*	11
Wheat for grain	1603	*23*	57	42	*31*	27	6034	*27*	52
Oats for grain	4273	*37*	54	143	*40.7*	39	9132	*35*	61
Barley for grain	6069	*21*	46	98	*27*	24	15070	*20*	49
Buckwheat for grain	14	*31*	15	1	*30.6*	11	25	*31*	13
Triticale for grain	946	*29*	52	28	*31.4*	27	3593	*28*	52
Cereals for grain	12921	*18*	50	189	*23.7*	25	33881	*18*	52
Cereals (incl forage sorghum) cut for hay	610	*49*	25	37	*49.1*	19	2092	*36*	24
Other Crops									
Oil poppies	1645	*24*	16	60	*28.3*	9	np		
Field peas for grain	258	*51*	51	17	*59.3*	44	590	*48*	51
Canola	65	*26*	57	2	*16*	33	72	*26*	57
Legumes for grain	307	*41*	48	18	*55.6*	35	728	*36*	50
Seed crops									
Cabbage (Chinese) for seed	4	*0*	9	1	*0*	6	1	*0*	8
Peas, green – for seed	82	*23*	47	4	*27*	22	258	*21*	59
Vegetable seed – other	75	*22*	40	12	*23.8*	19	51	*21*	52
Vegetable seed – total	162	*27*	15	16	*22.9*	8	311	*32*	1
Vegetable crops									
Potatoes	953	*35*	11	50	*45.7*	9	37150	*40*	10
French & runner beans	128	*43*	8	15	*62.7*	8	989	*42*	8
Peas green	1439	*19*	24	47	*26.6*	12	16076	*21*	23
Vegetables for human consumption	2602	*30*	13	85	*35.5*	9	55343	*32*	10
Sheep and wool									
Sheep and lambs shorn/wool	1239410	*18*	31	330	*22.6*	18			
Sheep and lambs (at 31 March)	1155681	*18*	30	344	*22.2*	18			
Dairying									
Dairy cattle at 31 March	5722	*86*	3	27	*86.3*	3			
Beef									
Meat cattle at 31 March	59712	*23*	12	271	*26.5*	9			
Minor enterprises									
Vegetables									
Broccoli	8	*0*	2	1	*0*	1	85000	*0*	2
Brussel sprouts	7	*34*	10	1	*34.1*	8	61105	*34*	6
Cauliflower	3	*34*	1	1	*34.1*	1	54	*34*	1
Leeks	1	*34*	26	1	*34.1*	14	2263	*34*	6
Lettuce	3	*34*	3	2	*34.1*	8	20	*34*	1
Onions white and brown	33	*0*	3	2	*0*	1	697	*0*	1
Parsnips	3	*34*	11	1	*34.1*	9	57	*34*	12
Sweet corn	8	*0*	22	1	*0*	7	133	*0*	28
Horticulture									
Orchard trees (including nuts)	23	*31*	1	4	*30.6*	2	0	*0*	0
Apples – total trees	4915	*0*	0	3	*0*	2	50200	*0*	0
Pears (excl Nashi) – total trees	65	*0*	0	2	*0*	6	500	*0*	0
Nashi – total trees	60	*0*	2	2	*0*	13	400	*0*	1
Pome fruit – total trees	5610	*0*	0	3	*0*	2	0	*0*	0
Apricots – total trees	1311	*0*	5	2	*0*	6	900	*0*	1
Cherries – total trees	4760	*0*	5	2	*0*	5	1521	*0*	1
Nectarines – total trees	2100	*0*	13	1	*0*	4	7008	*0*	20
Peaches – total trees	1552	*0*	23	2	*0*	10	6710	*0*	38
Plums & prunes – total trees	280	*0*	19	2	*0*	18	230	*0*	4
Other Crops									
Garlic	4	*0*	14	1	*0*	25	15000	*0*	33
Herbs – lemon grass, etc	2	*0*	20	1	*0*	50	500	*0*	100
Marrows and squashes	7	*0*	10	1	*0*	9	0	*0*	0
Marrows, squashes and zucchinis	7	*0*	9	1	*0*	6	0	*0*	0
Parsley	4	*0*	48	1	*0*	13	5400	*0*	23

Source: Australian Bureau of Statistics. Notes: n.p. – not published, se=standard error

Appendix 9.5 Agricultural production statistics for each region
Fingal Valley, year to March 31. 1998

	Area (ha) or number	*se* (%)	% of Tas	No of farms	*se (%)*	% of Tas	Product-ion (t)	*se* (%)	% of Tas
All holdings	61177	*6.2*	3	68	*11.8*	2			
Major enterprises									
Cereals									
Crops and pastures for hay	1938	*13.4*	4	43	*15.2*	2	5474	*14.9*	2
Wheat for grain	57	*0*	2	2	*0*	1	327	*0*	3
Oats for grain	116	*18*	1	4	*14.1*	1	208	*17.3*	1
Barley for grain	423	*5.8*	3	5	*6.6*	1	1421	*5.3*	5
Buckwheat for grain									
Triticale for grain									
Cereals for grain	595	*5.4*	2	8	*8.2*	1	1956	*4.2*	3
Cereals (incl forage sorghum) cut for hay	16	*0*	1	2	*0*	1	55	*0*	1
Other Crops									
Oil poppies	298	*6.1*	3	8	*6.9*	1	n.p.	n.p.	
Field peas for grain	12	*0*	2	1	*0*	3	30	*0*	3
Canola									
Legumes for grain	12	*0*	2	1	*0*	2	30	*0*	2
Seed crops									
Cabbage (Chinese) for seed									
Peas, green – for seed									
Vegetable seed – other									
Vegetable seed – total									
Vegetable crops									
Potatoes	104	*15.3*	1	8	*29.5*	1	4897	*12.1*	1
French & runner beans									
Peas green									
Vegetables for human consumption	114	*14.6*	1	8	*29.5*	1	5028	*11.9*	1
Sheep and wool									
Sheep and lambs shorn/wool	109560	*6.7*	3	46	*15.2*	3	437624	*6.1*	3
Sheep and lambs (at 31 March)	97215	*6.4*	3	48	*14.8*	2			
Dairying									
Dairy cattle at 31 March	4511	*14.4*	2	16	*22.1*	2			
Beef									
Meat cattle at 31 March	15204	*9.1*	3	60	*13*	2			
Minor enterprises									
Vegetables									
Broccoli									
Brussel sprouts									
Cauliflower	3	*34.1*	1	1	*34.1*	1	54	*34.1*	1
Leeks	1	*34.1*	26	1	*34.1*	14	2263	*34.1*	6
Lettuce	3	*34.1*	3	1	*34.1*	4	18	*34.1*	1
Onions white and brown									
Parsnips	3	*34.1*	11	1	*34.1*	9	57	*34.1*	12
Sweet corn									0
Horticulture									
Orchard trees (including nuts)	13	*0*	0	2	*0*	1			
Apples – total trees	275	*0*	0	2	*0*	1	1000	*0*	
Pears (excl Nashi) – total trees	65	*0*	0	2	*0*	6	500	*0*	0
Nashi – total trees	60	*0*	2	2	*0*	13	400	*0*	1
Pome fruit – total trees	610	*0*		2	*0*	1			
Apricots – total trees	1311	*0*	5	2	*0*	6	900	*0*	1
Cherries – total trees	4760	*0*	5	2	*0*	5	1521	*0*	1
Nectarines – total trees	2100	*0*	13	1	*0*	4	7008	*0*	20
Peaches – total trees	1552	*0*	23	2	*0*	10	6710	*0*	38
Plums & prunes – total trees	280	*0*	19	2	*0*	18	230	*0*	4
Other Crops									
Garlic									
Herbs – lemon grass, etc									
Marrows and squashes									
Marrows, squashes and zucchinis									
Parsley									

Source: Australian Bureau of Statistics. Notes: n.p. – not published, se=standard error

Appendix 9.5 Agricultural production statistics for each region

Northern Midlands A, year to March 31. 1998

	Area (ha) or number	*se* *(%)*	% of Tas	No of farms	*se* *(%)*	% of Tas	Product-ion (t)	*se* *(%)*	% of Tas
All holdings	53277	*11*	3	118	*9*	3			
Major enterprises									
Cereals									
Crops and pastures for hay	1473	*16*	3	58	*13*	2	5323	*16*	2
Wheat for grain	638	*14*	23	17	*19*	11	2580	*15*	22
Oats for grain	873	*13*	11	44	*16*	12	1960	*10*	13
Barley for grain	1391	*10*	11	33	*16*	8	3373	*10*	11
Buckwheat for grain	14	*31*	15	1	*31*	11	25	*31*	13
Triticale for grain	262	*18*	14	6	*18*	6	1131	*16*	16
Cereals for grain	3178	*8*	12	62	*12*	8	9070	*8*	14
Cereals (incl forage sorghum) cut for hay	126	*23*	5	10	*32*	5	582	*19*	7
Other Crops									
Oil poppies	299	*12*	3	13	*14*	2	n.p.	n.p.	
Field peas for grain	83	*27*	16	9	*36*	23	140	*24*	12
Canola									
Legumes for grain	132	*17*	21	10	*32*	20	278	*12*	19
Seed crops									
Cabbage (Chinese) for seed									
Peas, green – for seed									
Vegetable seed – other	18	*13*	10	3	*11*	5	15	*14*	15
Vegetable seed – total	18	*13*	2	3	*11*	1	15	*14*	0
Vegetable crops									
Potatoes	239	*14*	3	12	*21*	2	7215	*22*	2
French & runner beans	56	*28*	4	6	*38*	3	389	*28*	3
Peas green	475	*12*	8	16	*16*	4	3605	*13*	5
Vegetables for human consumption	786	*10*	4	26	*14*	3	11313	*15*	2
Sheep and wool									
Sheep and lambs shorn/wool	198662	*9*	5	93	*10*	5	772663	*9*	5
Sheep and lambs (at 31 March)	197449	*8*	5	96	*10*	5			
Dairying									
Dairy cattle at 31 March	641	*32*	0	3	*32*	0			
Beef									
Meat cattle at 31 March	11809	*10*	2	65	*12*	2			
Minor enterprises									
Vegetables									
Broccoli	8	*0*	2	1	*0*	1	85000	*0*	2
Brussel sprouts									
Cauliflower									
Leeks									
Lettuce									
Onions white and brown									
Parsnips									
Sweet corn									
Horticulture									
Orchard trees (including nuts)	6	*0*	0	1	*0*	0			
Apples – total trees	4640	*0*	0	1	*0*	1	49200	*0*	0
Pears (excl Nashi) – total trees									
Nashi – total trees									
Pome fruit – total trees	5000	*0*	0	1	*0*	1			
Apricots – total trees									
Cherries – total trees									
Nectarines – total trees									
Peaches – total trees									
Plums & prunes – total trees									
Other Crops									
Garlic	4	*0*	14	1	*0*	25	15000	*0*	33
Herbs – lemon grass, etc									
Marrows and squashes									
Marrows, squashes and zucchinis									
Parsley	4	*0*	48	1	*0*	13	5400	*0*	23

Source: Australian Bureau of Statistics. Notes: n.p. – not published, se=standard error

Paper 5:

Agricultural learning, extension and change

Fulton, A., Fulton, D., Tabart, T., Ball, P., Champion, S., Weatherley, J. and Heinjus, D. (2003) *Agricultural Extension, Learning and Change*. RIRDC Report Number: 03/032. Canberra: Rural Industries Research and Development Corporation.

This research report was conducted by a team of researchers from a wide range of disciplines and organisations including TIAR, DPIWE and a consulting firm Rural Directions based in South Australia, which was put together by RIRDC. David Heinjus from Rural Directions was appointed the Project Manager. TIAR was subcontracted to provide a range of services under my direction. My role was the development of the process for identifying relevant literature, the process for reviewing and compiling the results of the literature reviews, the design of the survey instruments, the design of the reports, the management of the research team and the development of recommendations. Tim Tabart played a key role in coordinating the research team, compiling the stakeholder interviews and in drafting the literature review. Other team members each played a role in reviewing a number of key research papers and/or in interviewing stakeholders. The research was undertaken in 1998 and the report submitted in 1999. It was published by RIRDC in 2003.

This report summarised the relevant research and development (R&D) on agricultural extension, learning and change at the time. The paper was developed primarily through a review of publicly available literature on the topics of agricultural extension, facilitation of change processes and farmer learning. It reported on what research has been conducted in four key areas:

1. Institutional change and organisational structures supporting learning and change
2. The professional development of farm advisers including their structural arrangement and careers
3. The facilitation of enhanced learning/change processes on farm
4. Better understanding of the barriers to participation in learning opportunities.

For each of these areas, the topics of relevant research, and the major findings, were reported, and gaps and weaknesses in the research were identified.

This report is placed fifth in the thesis to document research which had been conducted on the Australian extension system. It demonstrates current practice in extension, such as the product-push model, the focus on farmers as a barrier to change, the lack of emphasis on the role of women, and the lack of professional practice in extension. This understanding of the Australian extension system, particularly in relation to alternative international models of extension provided a basis for identifying alternative extension models for Australia (such as those advocated in later papers).

RURAL INDUSTRIES RESEARCH
& DEVELOPMENT CORPORATION

Agricultural Extension, Learning and Change

A report for the Rural Industries Research and Development Corporation

by Amabel Fulton, David Fulton, Tim Tabart,
Peter Ball, Scott Champion, Jane Weatherley and David Heinjus

May 2003

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Foreword

A number of service providers and rural research and development corporations identified possible synergies of working together and the benefits for them and their customers if they combine resources with the purpose of improving the efficiency and effectiveness of extension and learning opportunities in rural industries.

A priority for the group was to conduct a comprehensive review of relevant research and development being undertaken in Australia and overseas on new methods for agricultural extension, continuous business improvement in other relevant industries, facilitation of change processes and farmer learning

This publication summarises the relevant recent and current research and development (R&D) on agricultural extension, learning and change. The paper was developed primarily through a review of publicly available literature published since 1997 on the topics of agricultural extension, facilitation of change processes and farmer learning.

This project was funded by six R&D Corporations — Rural Industries Research and Development Corporation, Meat and Livestock Australia, Grains Research and Development Corporation, Woolmark (now Australian Wool Innovation), Horticulture Research and Development Corporation, (now Horticulture Australia Limited) and Dairy Research and Development Corporation

This report, an addition to RIRDC's diverse range of over 900 research publications, forms part of our Human Capital and Communications R&D program, which aims to enhance human capital and facilitate innovation in rural industries and communities

Most of our publications are available for viewing, downloading or purchasing online through our website:

- downloads at www.rirdc.gov.au/fullreports/index.html
- purchases at www.rirdc.gov.au/eshop

Simon Hearn
Managing Director
Rural Industries Research and Development Corporation

Contents

Executive Summary

This briefing paper summarises the relevant recent and current research and development (R&D) on agricultural extension, learning and change. The paper was developed primarily through a review of publicly available literature published since 1997 on the topics of agricultural extension, facilitation of change processes and farmer learning.

This paper reports on what research has been conducted in four key areas, as identified by the steering committee of the Joint Research and Development Corporation project:

1. Institutional change and organisational structures supporting learning and change
2. The professional development of farm advisers including their structural arrangement and careers
3. The facilitation of enhanced learning/change processes on farm
4. Better understanding of the barriers to participation in learning opportunities

For each of these areas, the topics of relevant research, and the major findings, are reported[1], and gaps and weaknesses in the research are identified. The main findings are summarised below.

For the purpose of this review, the term extension was used to include any advisory, consulting, technology transfer, research, training, marketing, industry development, learning, change, communication, education, attitude change, collection and dissemination of information, human resource development, facilitation, or self-development activities that are undertaken with the aim of bringing about positive change on farms and in agriculture.

1. Institutional change and organisational structures supporting learning and change

The current Australian institutional and organisational structures supporting learning and change processes include state and federal departments of agriculture and natural resource management; private extension providers; private agricultural businesses; vocational education and training providers; the national training authority; state training authorities; industry training advisory bodies; research and development corporations; Universities; farmer organisations; and other non-government organisations. These existing structures and institutions may have elements that foster learning and change processes (such as their links with industry), and elements that do not (such as the way they reward their staff). The relationships between each of these organisations (e.g., public and private; research and extension) will influence learning and change on-farm.

The main topics of recent research on institutional change and organisational structures were identified as:

- the provisioning of extension around the world and in Australia;
- policy for extension provision; and
- organisational factors affecting the delivery of extension.

[1] Further detail on innovative approaches identified in this literature review is reported in Appendix 1 (briefing paper 2).

This literature indicated extension structures are undergoing major change worldwide and in Australia. The international research provides a framework for evaluating the effectiveness, efficiency and accountability of service provision, and for identifying who is best to deliver what services and when. While there has been a major review of the changes to extension provision in Australia, there is a need to continue this work and identify the way in which relationships and structures are changing, recognising the interdependency of extension and research. From this, new opportunities for increasing the efficiency, effectiveness and accountability of extension will emerge. In addition, there is little evidence of the implementation of the research on ways in which extension organisations can improve their own effectiveness. This is an area requiring further research.

2. The professional development of farm advisers including their structural arrangement and careers

The Australian agricultural sector is supported by a wide and varied group of farm advisers, described here as extension practitioners. These include public sector extension officers (including Landcare, Bushcare, Waterwatch etc.) private sector consultants (on all aspects of farming, including farm management, personal relationships, finances, taxation, business development etc), agribusiness field officers, product sales advisers, stock agents, scientists and more. The professional development of these extension practitioners is linked to their ability to foster learning and change on farms and in agriculture. Their structural arrangements (such as length of contract and opportunities for professional development) and their career opportunities, influence the agricultural sector's ability to support on farm change.

An appraisal of the literature on agricultural extension indicated a paucity of research on extension practitioners. The review reports on a limited number of studies that examined the role of the extension practitioner, competencies, training of extension practitioners and the employment environment of extension practitioners.

Whilst there is an availability of extension practitioner training and development opportunities in Australia, there is a requirement to better appreciate who the practitioners are, their skills and competencies, professional environment, performance, and the specific expectations of clients and employers. In addition, there is no research on the structural arrangements of extension practitioners, and the impact this has on the provision of extension services. Such understanding can provide a firmer basis for the construction of development and training pathways and for improving the efficiency and effectiveness of agricultural extension.

3. The facilitation of enhanced learning/change processes on farm

Extension, as defined above, aims to bring about positive change on farms and in agriculture. This largely involves the use of processes to facilitate learning and change within the agricultural community. These processes, or 'extension methods', include groups, media, field days, education, advice, facilitation, lead farmers, focus farms, demonstrations, videos, publications and more. Extension also includes the process of planning research and extension, from understanding client needs, developing a plan, appointing staff and implementing and monitoring a program, through to evaluating impact.

There has been much research in Australia and overseas on the facilitation of learning and change in agriculture. These have examined:

- how learning occurs on farm;
- the extent to which learning/change processes are occurring on farm;
- how characteristics of farming and farmers influence change;
- the role of the learning content;
- processes for facilitating learning/change; and
- keys to the successful facilitation of learning.

This literature review identified that the research on processes for facilitating change on farm is largely limited to single evaluations of individual projects or programs. There is little comparative analysis of different approaches to facilitating change. There is little examination of the learning or change processes, of the quality of process delivery, or of the combinations of processes that are likely to be most effective under given circumstances. Despite an increase in evaluation of extension, there is still little publication of findings beyond the institutions for which they have been conducted. In addition there is little evidence of the research on these topics to date drawing on disciplines outside education and extension. For the research or extension practitioner it is difficult for them to determine what processes are most appropriate for their situation, and thus how they should design their extension effort to be more effective, and more efficient.

4. Better understanding of the barriers to participation in learning opportunities

Barriers to participation in learning or change opportunities may be factors related to an individual, their spouse, their family situation, and the characteristics of their farm, business, rural community or industry. They may also be related to the content, accessibility or delivery of the learning or change opportunities presented to the farmer.

The research on barriers to participation is limited in its depth and breadth, particularly in terms of understanding who is participating, why and what can be done to address barriers to participation. Little data has been collected on actual farmer participation in learning and change opportunities. Little is therefore known about potential untapped opportunities or problems with current provisioning. Further work is required to increase the awareness of the need to collect participation data. Reasons for and against participation in all forms of learning opportunities need to be further explored. Only in doing this can appropriate education products be delivered in an effective manner.

The contents of this paper, and the other three briefing papers[2], were circulated for feedback, and discussed at a workshop in Melbourne at the end of August 2000.

[2] Appendix 1 - briefing paper 2: Existing and potential innovative approaches to creating demand for learning and change. Appendix 2 - briefing paper 3: Opportunities for R&D to foster the development of human capacity in Australian agriculture Appendix 3 - briefing paper 4: Communication of developments in extension research and practice to Australian extension providers

1. Introduction

This briefing paper aims to summarise relevant recent and current research and development (R&D) on agricultural extension, learning and change. The paper was developed primarily through a review of publicly available literature published since 1997 on the topics of agricultural extension, facilitation of change processes and farmer learning. Additional information was obtained from seminal works before this period, and from suggestions of documents recommended through a broad consultation process with more than 60 potential investors, researchers, practitioners and customers of agricultural extension. The contents of this paper, and the other three briefing papers, were circulated for feedback, and discussed at a workshop in Melbourne at the end of August 2000.

This paper reports on the major literature in four key areas, as identified by the steering committee of the Joint Research and Development Corporation project:

1. Institutional change and organisational structures supporting learning and change
2. The professional development of farm advisers including their structural arrangement and careers
3. The facilitation of enhanced learning/change processes on farm
4. Better understanding of the barriers to participation in learning opportunities

The scope of each of these topics is described in the relevant sections of this report. From the outset of the project, the terms were interpreted in the broadest way possible. The term extension was used to include any advisory, consulting, technology transfer, research, training, marketing, industry development, learning, change, communication, education, attitude change, collection and dissemination of information, human resource development, facilitation, or self-development activities that are undertaken with the aim of bringing about positive change on farms and in agriculture.

The sections outlined in the key areas 1 to 4 are presented in the current document according to the nature and extent of the research on each topic. The type of research and the main findings are documented, followed by some conclusions about the quality and appropriateness of the research.

While much of the recent research on agricultural extension has been on the topic of participative research and extension, this work is not reported here due to a recent review undertaken by the Land and Water Resources Research and Development Corporation (LWRRDC) on this topic (Gleeson *et al.* 2000). In addition, there was little Australian literature on theoretical frameworks for extension published during the years under review, nor was this an area of examination for the contract. As such, the authors acknowledge that this literature review is neither extensive, nor exhaustive. However, we do believe that it captures the major works relevant to Australian agricultural extension.

2. Summary of relevant R&D on institutional and organisational structures supporting learning and change processes

The current Australian institutional and organisational structures supporting learning and change processes include state and federal departments of agriculture and natural resource management; private extension providers; private agricultural businesses; vocational education and training providers; the national training authority; state training authorities; industry training advisory bodies; research and development corporations; Universities; farmer organisations; and other non-government organisations. These existing structures and institutions may have elements that foster learning and change processes (such as their links with industry), and elements that do not (such as the way they reward their staff). The relationships between each of these organisations (e.g., public and private; research and extension) will influence learning and change on-farm.

Haug (1999) reviewed factors impacting on extension worldwide and noted that the study of extension institutions and their relationships is now a major focus for extension research. As such, there is a significant body of literature examining institutional and organisational structures supporting learning and change processes in agriculture. This section draws heavily on the dominant works of Carney (1998), who undertook a critical review the supply of agricultural services throughout the world; and in Australia, the work of Marsh and Pannell (1998, 1999 and 2000), which examined the changing nature of extension provision within Australia.

This paper describes the results of these and other studies using the following structure:

- the provisioning of extension around the world and in Australia (Carney 1998; Marsh and Pannell 1998, 1999 and 2000; Umali and Schwartz 1994);
- policy for extension provision (Carney 1998; Roling 1990; Alston and Pardey 1996); and
- organisational factors affecting the delivery of extension (Price 1999; Beer *et al* 1996; Van Crowder 1998; Keen and Stocklmayer 1999; Carney 1998);

2.1 The provisioning of extension

In many first and third world countries significant changes are occurring in suppliers and level of provisioning of extension. Carney (1998) investigated changing public and private roles in extension. Government models for provisioning of agricultural research, development and extension (RD&E) are considered to have fallen into disrepute in many countries due to poor progress in achieving policy aims such as export, food security and social well being (Goss 1994). Carney (1998) suggests that public sector involvement in research and extension is littered with wastage, lack of relevance and failure.

This section briefly examines the research on some of the newly emerging extension systems around the world, drawing largely on the work of Carney (1998). These new structures include those with changes to the suppliers of extension; those which are decentralised, mixed private and public roles; farmer driven provisioning; extension form private companies; groups of companies-producer associations providing extension services; extension providers share-cropping with farmers; and other organisations providing extension. For each of these emerging structures, an example is presented. The Australian situation is then reviewed.

Changes to the suppliers of extension

First world countries such as Britain, France and New Zealand are heading towards complete privatisation of agricultural extension services, while in other countries private and non-government services have been purchased by government. Carney (1998) suggests that generally, non-government participation in extension is most effective when government retains significant responsibility for the cost of service, and provides training equipment and monitoring. Examples where government involvement has been maintained include Chile, where the government's role is now coordination of private sector provision (Berdegue 1997); and Costa Rica, where vouchers are initially given to farmers to 'pay' for private extension provision, and then phased out over time. Similar 'subsidised' schemes operate in Australia.

Decentralisation, mixed private and public roles

Carney (1998) proposes, "China provides the most notable model of decentralisation and mixed public and private services". In China, groups of farmers pay for extension advice provided by Agrotechnical Extension Centres (AEC's). These AEC's link national and regional information as well as accessing information from research institutes, universities and individuals. Also in China, farmer organisations receive information from scientists and consultants who are invited to sit on their boards and become shareholders in market based enterprises.

Farmer driven provisioning

The Ugandan farmer driven option is an impressive example of a full alternative to public sector provisioning of extension (Carney 1998). The Uganda National Farmers Association (UNFA) established a 'demand-driven, cost recovery' extension service in a number of districts in Uganda. Upon request for training or advice, UNFA employees (who are often former public service extension agents), provide the service at full cost recovery rates. Carney (1998) suggests that the scheme is quite successful and has been requested to take over extension provisioning in at least one district.

Extension by private companies

According to Carney (1998), input supply companies, providing products such as seed, research and fertiliser are also in a position to provide information with their products. In most circumstances such companies only provide extension to 'market' their own products (Schwartz 1994; Umali and Schwartz 1994). Even so, Crompton (1997) sees such companies as potential providers of extension since they have regular contact with farmers and the existing 'network' required for extension provision. Schwartz (1994) noted this was the case regardless of whether the private company was trying to sell supplies or purchase quality product from growers. Marsh and Pannell (2000) report much evidence of extension by private companies in Australia, creating a complex system with a number of consequences. Martin (2000) points to stock and station agents as a first port of call for farmers and highlights their often unrecognised role in agricultural extension.

Groups of companies-producer associations providing extension services

Carney (1998) identified that groups of companies sometimes act as publicity arms for their member companies and engage in activities without immediate commercial benefits. The Agro-chemical Industry Association of Zimbabwe's chemical safety program is one such example (Carney 1998). The association aims to obtain inexpensive chemical protection clothing for its farmers. A similar example of this type of activity is the Indian Fertilser Association, which publishes literature and sets up demonstration plots (Umali and Schwartz 1994).

Extension providers share-cropping with farmers

Carney (1998) reports that share cropping arrangements exist in Ecuador, where farmers supply land and labour and the government extension agent supplies advice and inputs. Ameur (1994) reports that farmer arrangements with unlicensed providers from outside the public sector are also common in China.

Commodity organisations

Commodity organisations have been successfully involved in extension of new production techniques and Carney (1998) cites several international examples where such an organisation has had significant extension success. Martin (2000) discusses the role of commodity organisations in Australian extension provision.

Non government organisations (NGOs) and farmer organisations

NGOs often work in difficult and complex situations where government services are weak or non-existent. They provide services and methodologies for Research and Extension work that are often subsequently adopted by the public sector (Farrington and Ameur 1991). Carney (1998) suggests that farmer organisations, even though they are often both consumers and providers of information are not well positioned as providers of extension because among other problems they lack the financial and human resources that are needed. It is common to find that they are more interested in immediate issues and market access and price than extension (Collion and Rondon 1998).

Recent institutional changes to provisioning of extension in Australia

In the past, major providers of agricultural extension in Australia and overseas have been State departments of agriculture and primary industries. This has been supported by a well developed private sector. Recent changes to public sector agricultural extension in Australia follow a worldwide trend of decentralisation of agency activities (Rivera 1996). Vanclay and Lawrence (1995) refer to extension as being in a 'state of crisis' brought on by pressures relating to finance, effectiveness, legitimation and theory.

Recent reviews and restructuring of Australian extension organisations have resulted in policy directions aimed at achieving greater effectiveness and efficiency in agricultural extension. Although efficiency and effectiveness are purported to be the driving force of recent change, Marsh and Pannell (1998, 1999 and 2000), in their review on changing relationships between private and public sector agricultural extension in Australia, suggest that in many cases, recent restructuring has been for reasons other than benefit to agriculture.

Marsh and Pannell (1999) report that agricultural departments have responded to the driving force for change in a range of ways including:

- developing industry partnerships;
- adoption of the funder-purchaser-provider model;
- outsourcing;
- differing degrees of integration or separation of agency responsibilities;
- cost-recovery; or
- redirection of extension activities.

Along with the restructuring of agricultural extension services, Marsh and Pannell (1999) report concurrent developments in the Australian private sector including a greater role in research and extension and a greater input into policy and research priorities.

Impact of changing extension provision

The retreat from agricultural extension by state departments of agriculture is expected to have a range of medium and long-term impacts for Australian agriculture. Marsh and Pannell (1998) question the capacity of the private sector to immediately provide similar levels of Research, Development and Extension services to those previously offered by government, and note that many providers are dependent on government support. They report there are fewer incentives for the private sector to provide public good information in Australia.

Where information is disseminated as a 'secondary task' which complements another activity, Schwartz (1994) points out that the extension information, even though it is a public good, will only benefit those who have access to the primary activity. Umali and Schwartz (1994) propose that provision of erroneous information can reduce consumption of extension information to suboptimal levels. In some situations where government has relinquished itself of research in the area in question, both the farmer and the government may no longer be in a position to legitimately value the extension information.

These changes in extension provision also have implications for agricultural research. While extension is often considered as a means of delivering research information to farmers, it can play a dual role of conveying farmers' information back to researchers. Marsh and Pannell (1998) suggest that Australian Research and Development corporations now accept private sector researchers, and question the infrastructure costs and 'in kind' contribution estimates of state departments of agricultures, Universities and CSIRO. This, combined with the increased emphasis on intellectual property rights, has contributed to a fragmentation of the flow of information from research to farmer and vice versa (Marsh and Pannell, 1998). Carney (1998) reports that increased pluralism in extension provision may further fragment any possible demand that extension may exert on research. It is suggested this is a problem since there is little pressure from extension for driving appropriate research to be conducted in the first place.

Research in Australia and New Zealand presents evidence for collaborative approaches to research and extension. In a study of the development of technology for the New Zealand dairy industry, Paine (1999) recommended that in the new extension environment, organisations need to work together to effectively develop new technologies. Keen and Stocklmayer (1999) in their review of research corporation's communication strategies, recommended collaboration across organisations would increase the efficiency of information delivery. Carney (1998), who also looked at the provision of research, proposed that multiple funding and supply of agricultural research contributes to increased stability of provision and better research.

2.2 Policy for the provision of extension services

Government policy on whether or not it should provide extension, what type of extension should be provided, who should pay, and how extension should be provided plays a critical role in determining the nature and extent of extension provisioning in any particular country. Past models for legitimising government roles in Research, Development and Extension are in disrepute largely due to poor government progress in achieving policy goals of export food security and social well being (Goss 1994). Old aims for extension provision are disappearing, and new models are now emerging. The concepts of effectiveness, efficiency and accountability now dominate debate over government involvement in extension.

Within the area of Research and Development on policy for the provision of agricultural extension services, the main areas examined in the literature include the purpose of extension (Roling 1990. 1991; Kaimowitz 1990; Carney 1998; Alston and Pardey 1996; Marsh and Pannell 1998, 1999 and 2000); determining how to decide what services should be provided, and to whom (Carney 1998; Umali and Schwartz 1994; Merrill Sands and Collion 1993; Smith and Thompson 1991; Marsh and Pannell 2000; Martin 2000).

The purpose of agricultural extension

Roling (1990, 1991) and Kaimowitz (1990) propose that extension should focus on 'overall livelihood enhancement" in order to realise rural people's full potential. They continue that traditional agricultural intervention may not service the needs of non-landed rural people, and extension needs to be responsive to the changing needs of rural people.

Alston and Pardey (1996) in their work on research and extension policy propose that research and extension are not effective mechanisms for reducing poverty in rural areas. They recommend that research and extension should be done at the commercial level and other means should be adopted for support of rural people.

Carney (1998) cites many examples where government research and extension are isolated from clients. This results in a fundamental lack of concern by individuals and governments for rural producers. Carney (1998) suggests that this isolation leads to growers being seen and treated as ignorant and in need of modernisation.

What services should be provided, to whom, when and who should pay?

Carney (1998) suggests that evaluation of extension service provision has been largely based upon social indicators and economic growth, but few have considered goods and services available to rural people. Furthermore, Carney (1998) proposes that there has been little investigation into who the services actually serve. Nor have there been investigations into the impact of changes in government service provisions.

To address this, Carney (1998) developed a framework for classifying goods and services to determine which were appropriate for public provision, private or mixed provision. She was then able to apply this framework to extension, research and marketing services to determine whether they should be provided by government or by the private sector. Carney (1998) emphasised the strong interdependence of agricultural extension with research and marketing in achieving positive change for agricultural communities. Her examination of different types of research demonstrated that the stage of the technology (pre-technology; prototype technology or useable technology), and the type of technology being developed (mechanical, chemical, biological or agronomic), influenced what type of research and extension services were required, and who was best positioned to provide the service.

It is generally recognised that government should not be in competition with private provision of extension, but should address the problem of only partial service being provided by profit oriented companies (Smith and Thompson 1991). New emphasis should be placed on partnerships between public and private partnerships in less well serviced areas:

"For free markets to work better governments should also work better" Klitgaard (1991)

"Market orientation and state minimalism are incompatible" Streeton (1996).

Where governments continue to act, accountability should be deliberately pursued.

> "Advantages in this lie not only with increased efficiency and effectiveness but also strengthening civil society" Carney (1998).

Public sector cost recovery systems can contribute to accountability. When consumers pay for a good, they express and enforce satisfaction of their needs (Merrill Sands and Collion 1993). Accountability can be improved through strengthening links between rural people and the public sector; and through improved evaluation of extension (Dart *et al.* 1999).

Carney (1998) proposes that in order to improve efficiency governments should withdraw from areas where markets function and invest in infrastructure that makes markets possible. Around the world, cutting costs within organisations has been achieved by just getting rid of people. But cost cutting without regard for "effectiveness of services" is counterproductive (Carney 1998). It is often more appropriate to find cheaper ways of undertaking activities, such as building new partnership with other organisations, rather than reducing the workforce.

In most states of Australia policy relating to provision and practice of agricultural extension has been driven by consideration of private and public goods, competitive neutrality, user pays, and cost recovery (Marsh and Pannell 1999). The delivery of extension has been strongly influenced by changing administrative structures within State governments and a change in the paradigm within which the extension community operates (Marsh and Pannell 1999). This has led to:

- greater emphasis on provision in public good areas;
- more involvement of the private sector;
- emphasis on development of the human resource in agriculture;
- growing commitment to participatory processes in extension activities; and
- cutting back and changing of direction of government spending commitments.

2.3 Organisational structures for extension provision

Few studies have examined the impact of the internal structure of an organisation on its ability to provide effective, efficient and accountable extension services. While Gleeson *et al.* (1999) examined the characteristics of creative research environments; there have been no equivalent studies of extension organisations. Five principles of goal setting, bounded freedom, reward and recognition, social interaction, and effective leadership were proposed as a means of fostering the creative environment. While it is likely that many of the findings would be broadly applicable to those working in extension, this needs to be verified.

Alexander and McKenzie (1997) in their analysis of the use of information technology in university learning have demonstrated that institutions play a major role in helping their education providers to perform to a higher level. Other relevant studies include those of interdisciplinarity (Price 1999); communication strategies of Australian research and development corporations (Keen and Stocklmayer 1999) and strategies for aligning organisational activities with its objectives (Beer *et al.* 1996; Coutts 1995).

Price (1999) has examined the advantages and disadvantages of an interdisciplinary approach to Research, Development and Extension in agricultural systems, where teams from a range of fields of expertise work collaboratively on a research and/or extension project through each step of the problem solving process. The key to achieving interdisciplinarity is effective management of Research and Development, but there are many barriers to this occurring, particularly within organisations (for example reward systems; and discipline based research structures).

Keen and Stocklmayer (1999) report that many research programs in Australian research and development corporations (RDCs) may either impose, emphasise or by-pass communication strategies completely. Communication strategies that do exist are often embedded in the management style of the project and are influenced by the nature of the study. Keen and Stocklmayer (1999) argue that the

efficacy of RDCs' communication are hindered through self-evaluation of efficacy, exclusion of communication personnel from review activities and suggest that the structure of finances within research portfolios all effect the communication process even before research is initiated.

Beer *et al.* (1996) suggest that the effectiveness of an organisation is dependent upon the alignment of an organisation's structure, control systems, incentive systems, corporate culture and management style, and that this is often considered as the general manager's role. Beer *et al.* (1996) report that where re-alignment in an organisation is required, a number of unfounded assumptions are often held. Examples of these assumptions include that:

- employees are motivated to adjust their roles by rational arguments from management;
- those employees have the new attitude skills needed to enact the changes; and
- if deficiencies exist in employees these can be corrected through communication and education.

Beer *et al.* (1996) conclude that there are significant gaps in the organisational literature and current practice on enacting realignment in organisations. The authors propose that 'cultural norms' govern attitudes and behaviour, and that this is difficult to change through normally accepted channels unless there is a broader shift in culture. Recognition of employee's beliefs, assumptions and behaviour is called for before any realignment can take place. The researchers propose that many of the most significant of these beliefs and assumptions are undiscussable, and their undiscussability is undiscussable. Nevertheless, Beer *et al.* (1996) report that a variety of intervention methods have emerged that are especially designed to promote trust and open dialogue between management and subordinates.

Coutts (1995) explored the role of extension policy in facilitating positive change by researching the initiation, development and early implementation of a formal extension policy in the Queensland Department of Primary Industry between 1987 and 1994. He found that extension policy formulation operated at the strategic level, building external commitment and requiring across government negotiation. The process legitimised public sector extension and resources were secured to put in place new structures, processes and positions. However, implementation was prescriptive and not consultative, such that this process limited 'commitment at the collective level' to the endorsed policy. Coutts (1995) recommended benefits would be gained from regular negotiation and review of extension policy within the organisation.

2.4 Conclusion

The literature on organisational structures for agricultural extension indicates that these are undergoing major change worldwide and in Australia. The international research has provided a framework for evaluating the effectiveness, efficiency and accountability of service provision, and for identifying who is best to deliver what services and when. While there has been a major review of the changes to extension provision in Australia, there is a need to continue this work to identify the way in which relationships and structures are changing, recognising the interdependency of extension and research. From this, new opportunities for increasing the efficiency, effectiveness and accountability of extension will emerge. In addition, there is little evidence of the implementation of the research on ways in which extension organisations can improve their own effectiveness. This is an area requiring further research.

3. Summary of R&D on the professional development of farm advisers their structural arrangements and careers

The Australian agricultural sector is supported by a wide and varied group of farm advisers, described here as extension practitioners. These include public sector extension officers (including Landcare, Bushcare, Waterwatch etc.) private sector consultants (on all aspects of farming, including farm management, personal relationships, finances, taxation, business development etc), agribusiness field officers, product sales advisers, stock agents, scientists and more. The professional development of these extension practitioners is linked to their ability to foster learning and change on farms and in agriculture. Their structural arrangements (such as length of contract and opportunities for professional development) and their career opportunities, influence the agricultural sector's ability to support on farm change.

In an environment seeking to improve client focus, it is easy to place less emphasis on the other partner in development, the extension practitioner. Indeed, second only to the lack of definitive research seeking to fully understand farmers, the literature appraised to date tends to indicate a paucity of research on extension practitioners. Despite this there are a range of important questions concerning the training of extension practitioners that deserve consideration. These include:

- who are they; how are they employed;
- what roles do they perform;
- what training and professional development is available;
- what training and competencies do they currently have;
- what competencies should they have;
- how are their skills recognised; and
- what is the availability of this resource.

Some of these issues are discussed in the literature, but not many are accompanied by substantive data. An integrated approach to the development of extension practitioners must consider each of the elements outlined above. Some studies have addressed components of this dynamic. Such research can start with better understanding the practitioners' specific roles and an examination of the ways in which they are expected to meet the needs of their farmer clients. This review reports on the relevant Research and Development on the role of the extension practitioner, competencies, training of extension practitioners and the employment environment of extension practitioners.

3.1 Roles of the extension practitioner

In an increasingly broad and dynamic extension environment, extension practitioners may deliver services ranging from technology transfer to facilitative human development, performing in the roles of development, program or information extension, in private or public agencies (Coutts 1995; Marsh and Pannell 2000). Changing perspectives of rural development add to the diversity of roles and employment structures as detailed by Phelan (1995) in Ireland. However, this review did not uncover any research providing greater detail about these roles or their importance in current extension delivery in Australia, nor the training priorities that might be indicated by such information.

3.2 Competencies

Straw *et al.* (1996) detailed some of the key competencies required of extension providers in general. These ranged from interpersonal and communication skills, to knowledge, planning, evaluation and ethical competence. No data was found in the literature to indicate how widely these skills are applicable nor how prevalent they are amongst extension providers. Straw *et al.* (1996) recommended the incorporation of such competencies into training course structures.

In the US, Ladewig and Rohs (2000) presented a large data set assessing extension workers against a suite of 12 management proficiency criteria, important to the design and implementation of educational programs. Competencies that could be strengthened were: setting goals and standards, getting unbiased information, time management and prioritising, appraising people and performance, and disciplining and counselling. Weaknesses in thinking clearly and analytically, and in listening and organising were highlighted.

3.3 Training of extension practitioners

Straw *et al.* (1996) comprehensively detailed the post-graduate training in rural extension available in Australia. It was suggested that competencies could be better addressed within these training courses and the approach to training content broadened. Participants indicated enhancement of skills and knowledge as a key motivating influences, and that there were issues of concern relating to access to training, provider performance, learning support and linkages between institutes.

Van Crowder *et al.* (1998) indicated that undergraduate agricultural science courses can respond to market demands by placing more emphasis on extension and client needs. This reflects a general principle that market and role requirements, their attendant competencies and hence training content, each require more rigorous attention.

Marsh and Pannell (2000) note that training inexperienced private consultants is a developing issue, in light of a reduced availability of appropriate staff recruited from the public sector. This leads to the wider question of what skills are available and where. Hannam and McGregor (1997) examined the education and training needs of rural merchants, but little quantitative data was provided to support this discussion. Further to this, the Rural Training Council of Australia has examined the skills requirements of rural merchants and developed units of competency for rural merchant qualification (RTCA 1999).

Most recently, Martin (2000) examined the role of stock and station agents in information provision for Australian agriculture. These were found to play an important role in the provision of marketing and technical information, usually via face to face interaction. About one fifth of the agents surveyed were found to have university education; with 71% having a high school or TAFE background. Martin (2000) concluded there was huge potential for supporting the farming community and communicating research through support for stock and station agents.

In Ireland (Phelan 1995) the provision and content of extension practitioner training changed to reflect the widening roles of the extension provider. Post-graduate programs in rural development are offered and courses have changed to place less focus on agriculture and more on the provision of business, human, marketing and tourism skills.

3.4 Employment environment

The conditions of employment, tenure, remuneration and recognition would all be expected to have a role to play in the performance and training of extension practitioners, but these aspects were not discussed in the literature reviewed. Carney (1998) notes that not only is it important to focus on providing training in new skills such as social mobilisation and participatory rural appraisal, but there must also be a focus on improving the immediate working environment. Environments that encourage responsiveness and initiative can improve effectiveness (Tendler 1997, cited by Carney 1998).

Employers can take an active role in encouraging the training of extension practitioners by adopting professional job standards based on key competencies, and by providing or seeking financial support for employees to undertake training (Straw *et al.* 1996). Cadetships, mentoring, and career development workshops can foster the wider development of the human resources available to an organisation, as Elix *et al.* (1998) noted when discussing the increased inclusion of women in agriculture.

Gleeson *et al.* (1999) examined the role of creativity in successful research and development. Five principles of goal setting, bounded freedom, reward and recognition, social interaction, and effective leadership were proposed as a means of fostering the creative environment. Such principles would seem appropriate support for the development of the extension environment also.

Other aspects of the employment and organisational environment such as those discussed by Beer *et al.* (1996) are dealt with when considering institutional arrangements.

3.5 Conclusion

Whilst there is an availability of extension practitioner training and development opportunities in Australia, at present it seems there is a requirement to better appreciate who the practitioners are, their skills and competencies, professional environment, performance, and the specific expectations of clients and employers. In addition, there is no research on the structural arrangements of extension practitioners, and the impact this has on the provision of extension services. Such understanding can provide a firmer basis for the construction of development and training pathways and for improving the efficiency and effectiveness of agricultural extension.

4. Summary of relevant R&D on the facilitation of enhanced learning/change processes on farm

Extension, as defined in the first section of this paper, aims to bring about positive change on farms and in agriculture. This largely involves the use of processes to facilitate learning and change within the agricultural community. Learning includes both learning what and how (single loop learning); and double loop learning (learning why). The processes for facilitating learning, or 'extension methods', include groups, media, field days, education, advice, facilitation, lead farmers, focus farms, demonstrations, videos, publications and more. Extension also includes the process of planning research and extension, from understanding client needs, developing a plan, appointing staff and implementing and monitoring a program, through to evaluating impact.

There has been much research in Australia and overseas on the facilitation of learning and change in agriculture. This review focuses on recent studies from Australia and New Zealand. These have examined:

- how learning occurs on farm (Bamberry *et al.* 1997; Kilpatrick *et al.* 1999a; Kilpatrick 1996);
- the extent to which learning/change processes are occurring on farm (Synapse Consulting 1999; Bamberry *et al.* 1997; Kilpatrick 1996; Kilpatrick *et al.* 1999a);
- how characteristics of farming and farmers influence change (Vanclay 1999; Fulton and Champion 1999; Reeve and Black 1998; Kilpatrick and Bell, 2000);
- the role of the learning content (Kilpatrick *et al.* 1999a; Reeve and Black 1998; Bryant 1997);
- the effectiveness of learning/change processes for facilitating change on farms (Bryant 1997; Alexander *et al.* 1997; Morgan, 2000; Keen and Stocklmayer 1999; Paine 1999; Millar and Curtis 1998; Kilpatrick and Bell, 2000; Reeve and Black 1998; Kilpatrick 1996; Woods *et al.* 1993) and
- keys to the successful facilitation of learning (Alexander *et al.* 1997; Fulton and Champion 1998; Virtual Consulting Group 1999a; Dart *et al.* 1999).

These studies and their major findings are described below. Topics lacking research are identified.

4.1 Learning/change processes on farm

Farmers learn through a combination of mechanisms such as reading, experts, farmers, the media, experience and observation, groups, field days, seminars, conferences and organised training or education (Bamberry *et al.* 1997; Kilpatrick *et al.* 1999a). Farmers prefer non-organised non-institutional learning (such as one on one with experts and peers, experience, observation and the media) to organised training and education (Bamberry *et al.* 1997; Kilpatrick 1996). Kilpatrick *et al.* (1999a) described farmer patterns of learning, motivations for learning and the role of women in farm management learning. They demonstrated that farm management learning is a function of the learning of both the male and female members of the management team.

Bamberry *et al.* (1997a) defined informal learning as all those mechanisms not included as part of the structured accredited courses of study offered through educational institutions. Kilpatrick *et al.* (1999a), however, distinguished between informal learning as individual learning from experience and observation, other people and the media; and education and training as organised learning activities. This latter definition is used for this report.

4.2 The extent to which learning/change processes are occurring on farm

The nature and extent of farmer learning and change has been examined by researchers in terms of adoption of technology or participation in education and training. Farmer participation in education and training has been reported as low compared to the rest of Australia's population (Synapse Consulting 1999; Kilpatrick 1996; Garnaut and Lim-Applegate 1998). This low level of participation in formal education has led to a call for increased education and training of Australia's farmers and for an identification of strategies for improving participation in tertiary education (Synapse Consulting 1999). Bamberry *et al.* (1997), however, argue that farmers are not as poorly educated as the statistics suggest given that much of their education is continual, informal and derived in the workplace. Kilpatrick *et al.* (1999a) present evidence that most farmers studied were involved in some sort of management, marketing or management-related change.

4.3 The relationship between extension and learning/change on farm

Funding of extension has been premised on the concept that increased knowledge and skills bring about positive changes on farm. Kilpatrick (1996) demonstrated that farm profitability increased with farmer education. While this has not been clearly supported by some studies (Garnaut and Lim-Applegate 1998; Bamberry *et al.* 1997), Quinn (1999) has recently demonstrated a strong relationship between farmer educational levels and adoption of technology in the beef industry; and Reeve and Black (1998) demonstrated that continuing education increases the likelihood of farmers adopting sustainable farming practices. The reasons for the contradictory evidence are largely related to the researcher's definitions of 'education' and 'positive change on farm'. However, there is significant evidence that extension can lead to positive change on farms. This can be found in the numerous evaluations of extension programs (as listed, for example, in Dart *et al.* 1999). These evaluations report increased knowledge and skills, and positive changes to the farm operations of the participants involved.

4.4 Farmer and farm characteristics influencing learning/change processes on farm

The influence of the social context of farming on learning

One of the main areas of research on the facilitation of enhanced learning/change processes on farm has been understanding how on farm change is influenced by the farmers' personal, family, business, industry and regional characteristics. Vanclay (1999) argues that farming is a social activity with distinctive farming styles. The author advocates that the social context within which farm management occurs must be understood if research and extension are to be successful. Other authors focus on the need to understand and address the needs of the farm family, and the farm family business rather than the individual farmer (Fulton and Champion 1999; Reeve and Black 1998; Kilpatrick and Bell 2000; Virtual Consulting Group 1999).

The influence of the personal characteristics of the farmer on learning

Many studies have been conducted on how the personal characteristics of farmers influence learning. Kilpatrick *et al.* (1999a) demonstrated that the type of learning women are involved with would vary from one farm family to another. Kilpatrick (1996) demonstrated how farmer educational background influences participation in learning. There is little evidence, however, about the extent to which personal characteristics improve or hinder the learning process. Shrapnel and Davie (2000) have studied the influence of personality in determining farmer responsiveness to risk.

4.5 Characteristics of the learning content

Kilpatrick *et al.* (1999a) also examined the impact of the characteristics of the learning content on farmer interest in learning. While farm management training was considered a high priority by industry 'leaders', farmers did not view it similarly. Bryant (1997) examined farmers' computer usage patterns and the impact these had on farm management practices. She identified that few farmers were using sophisticated information technology to support farm management and that some perceived computer-based office work not to be 'real' work, and hence did not purchase a computer. This supports the large body of research on the adoption of technology that has demonstrated the relationship between adoption and perceived relevance and nature of the technology or information (Guerin and Guerin 1994; Rogers 1983).

4.6 Processes for facilitating learning/change

Major reviews of extension methods have been undertaken by Woods *et al.* (1993); Kilpatrick *et al.* (1999a); and Bamberry *et al.* (1997). In the process of evaluation of numerous extension programs, different approaches to facilitation of learning/change on farm have been examined. Although this was often not the primary objective of the research, many studies report on the effectiveness of the methods used. The processes reported here include groups; information technologies; workshops; home study; and participative research and extension.

Group processes

The literature on group processes was reviewed by Woods *et al.* in 1993. These authors examined both one-off groups and on-going groups, but in attempting to do so, they found large gaps between practice and reporting in the literature. A checklist of key characteristics for one-off group meetings was developed from the available literature, with recommendations that a participatory action learning/action research be used, and that other information delivery methods are required to complement the one-off group method. On-going groups were reported to have great potential for supporting learning and change, but Woods *et al.* (1993) reported a lack of objective evaluation linking group processes with adoption or change. Again, a participatory action learning/action research approach was recommended.

Since the report by Woods *et al.* (1993), there has been an increase in the use of groups, and in the level of evaluation of their effectiveness. In Queensland in particular, there has been a significant body of research on action learning as the basis of individual and group learning activities (Clark *et al.* 1999a; Clark *et al. 1999b*). This focuses on developing the skills of individuals and groups to recognize their current level of knowledge and to seek further information and understanding in order to solve problems. Evaluations of this approach have demonstrated significant learning amongst participants (Clark *et al.* 1999a).

Kilpatrick and Bell (2000) evaluated the effectiveness of the Executive Link process of the formation of 'boards' of five to six farm businesses, all overseeing one another's operations through a facilitated

process. Kilpatrick and Bell (2000) found that the communication process allowed learning within each farm business team, leading to better coordination of the efforts of all members of the farm business team.

Another process developed to assist farmers to solve their own problems is the "interest specific learning groups" developed in the dairy industry. Virtual Consulting Group (1999) developed and reviewed a process for training farmers to run and manage their own learning groups. The research indicated that with coaching support and administrators, such groups could be an effective adjunct to externally facilitated groups.

While the quantity of information on groups has increased, there has been limited major research to examine groups in depth: who participates in groups, why, what are the steps they go through; which group processes are appropriate for which circumstances; how can group effectiveness be evaluated; what skills do extension practitioners need to effectively facilitate group processes? Considering their domination of public service extension activity in Australia, significantly more knowledge and understanding of their operation and effectiveness is needed.

Information technologies for delivering learning

A major study of the potential of information technologies (IT) for use in learning was undertaken by Alexander *et al.* (1997). While the 104 learning projects evaluated were delivered in a University framework, the research provides valuable information on the costs and benefits of introducing greater levels of information technology to learning and teaching. It also provided recommendations for how to use information technologies to maximize student learning outcomes. The study showed the costs of delivering IT learning were low for students, but high for institutions and staff. Students also benefited from improved quality and productivity of learning, improved access to learning and improved attitudes to learning. Staff benefits included improvements in job satisfaction, understanding of IT and of student learning, needs and difficulties. University departments benefited from the staff development opportunity afforded by individuals' participation in the projects; and institutions benefited through the enhancement of their reputations as innovators in teaching.

The role of computers

While Bryant's study of computer usage patterns amongst Australian farmers (1997) did not directly examine the role of information technology in farmer learning, subjects provided evidence of having learned more about their business by using computers. When asked about their plans for future IT use, however, subjects did not report 'learning' as a future use, rather they reported they would use computers for financial and paddock mapping programs, and for obtaining quick up to date information on marketing and research.

Other learning processes

Reeve and Black (1998) assessed the relative impact of participation in home study programs, local groups and information networks on the adoption of sustainable farm practices. They recommended that high priority be given to computer courses in rural areas and that there should be increased emphasis on delivering courses through farmer groups. Kilpatrick (1997) reviewed delivery methods for education and training to rural Australia. Delivery methods examined included extension courses for farmers; farmer discussion groups and TAFE courses. Kilpatrick (1997) found that delivery methods that facilitated peer interaction were most attractive to those already in the workforce.

Daniels and Woods (1997) evaluated the effectiveness of a workshop training activity for improving business management skills of farm families. They found the workshops brought about changes in skills, teamwork and decision-making, with the resulting learning and change was occurring over several years. Keys to success were identified as involving the whole management team and the use of follow up after the workshop.

Participative research and extension

Keen and Stocklmayer (1999) reviewed the effectiveness of the communication activities of Australia's research and development corporations (RDC's) and recommended strategies for improvement. To ensure the needs of the end-user are met, Keen and Stocklmayer (1999) recommended that the communication framework should involve the development of partnerships with key stakeholders at all stages of research project initiation, planning, implementation and completion. This would provide an opportunity for two-way communication between all parties during the course of the project, allowing researchers to respond to end-users' needs.

In studying the process of technology development in the New Zealand dairy industry, Paine (1999) drew similar conclusions. He found the early development of technology users in the development process avoided later constraints to development. Millar and Curtis (1998) in their examination of the nature and role of farmer knowledge in temperate pasture management in the Murray-Darling Basin, concluded that farmer local knowledge could play an important role in guiding scientists and extension practitioners in understanding the systems in which they (the scientists and extension practitioners) are conducting research and extension.

Selecting appropriate processes for facilitating learning/change

In its review of human resource development and extension in the dairy industry, Virtual Consulting Group (1999) concluded that effective extension needs to appropriately utilize a range of methods and processes depending on circumstances. Woods *et al.* (1993) in their examination of extension methods and their applicability, drew the same conclusion. However, the use of groups now dominates Australian public sector extension, reflecting the public sector's policy shift away from one-to-one extension. Marsh and Pannell (2000) identify some concerns with the widespread use of groups, particularly that they may not be being used when most appropriate. No studies, however, have examined the effectiveness of the variety and combinations of current approaches used in either public or private sector Australian extension.

Process design factors affecting a successful learning outcome

Most of the studies of learning examine the factors affecting participation in learning, rather than the effectiveness of the learning activity. While it is likely that in many cases the same factors affect each, few research reports make the distinction between the participation and learning. The Roy Morgan report on FarmBi$ (Morgan 2000) found that the learning activities offered by this program were well received for a number of reasons: they met the learner's needs; the provided value for money and they were well executed.

One of the most comprehensive reviews of factors affecting the outcomes of learning activities has been that of Alexander *et al.* (1997). As mentioned above, these authors reviewed the factors affecting the outcomes of information technology projects. Their conclusions, however, were relevant to all learning projects:

> "The use of a particular information technology did not, in itself, results in improved quality of learning or productivity of learning. Rather, a range of factors was identified which are necessary for a successful project outcome, the most critical being the design of the students' learning experiences."
> Alexander *et al.* (1997)

The factors identified by Alexander *et al.* (1997) include the need to properly plan, fund, manage, execute and evaluate (and continuously improve) the learning program. The study made recommendations regarding funding arrangements for IT learning project; and the criteria by which project proposals should be evaluated (i.e., on the extent to which they were likely to lead to positive learning outcomes for students).

The role of evaluation in learning/change processes on farm

The recommendation of Alexander *et al.* (1997) for continuous evaluation and redesign of learning projects is supported by the work of Dart *et al.* (1998). These authors reviewed the literature on evaluation of agricultural extension and argued that the effectiveness of extension in Australia could be improved by increasing its accountability. This would then require more appropriate use of planned evaluation, which in turn would lead to better planning of extension projects, and better results.

4.7 Conclusion

The research on processes for facilitating change on farm is largely limited to single evaluations of individual projects or programs. There is little comparative analysis of different approaches to facilitating change. There is little examination of the learning or change processes, of the quality of process delivery, or of the combinations of processes that are likely to be most effective under given circumstances. Despite an increase in evaluation of processes, there is still little publication of findings in beyond the institutions for which they have been conducted. In addition there is little evidence of the research on these topics to date drawing on disciplines outside education and extension. For the research or extension practitioner it is difficult for them to determine what processes are most appropriate for their situation, and thus how they should design their extension effort to be more effective, and more efficient.

5. Summary of R&D on better understanding of the barriers to farmer's participation in learning opportunities

Barriers to participation in learning or change opportunities may be factors related to an individual, their spouse, their family situation, and the characteristics of their farm, business, rural community or industry. They may also be related to the nature of the learning or change opportunities presented to the farmer.

This review focuses solely on Research and Development on barriers to farmer participation in learning opportunities, leaving aside both barriers to adoption of technology and barriers to change. In this paper learning opportunities have been broadly defined using the categorisation of Kilpatrick *et al.* (1999a) who separate farmer learning into two categories, informal learning and education and training. Informal learning is taken as individual learning from experience and observation, other people, and the media. Education and training is seen as any organised learning activity in which farmers learn as a group and includes 'formal' accredited courses, as well as non-accredited courses, field days, seminars, and farmer-directed groups.

The review has found that researchers have identified barriers to participation in education and training, but there has been little research identifying barriers to informal training despite the conclusion of Bamberry *et al.* (1997) that informal learning, combined with learning on the job, was the main source of education for many farmers.

5.1 Extent of participation in education and training opportunities

Information on the extent to which farmers are participating in learning opportunities will be useful to judge the significance of barriers to participation. However little information appears to be available. A national survey of Australian farmers found that over a twelve month period 80% of farmers participated in programs such as field days, courses, seminars and workshops while only 3% attended accredited training courses such as university and TAFE (Kilpatrick 1996). In a later study Kilpatrick *et al.* (1999a) state that farmers are not participating in the type of training that industry leaders and agricultural educators see as a priority, such as marketing and management. There is little information about farmers participation in informal learning apart from Bamberry *et al.* (1997), nor is there recent research comparing participation in learning by farmers with participation levels in other industries or within the rural community generally.

5.2 Barriers to participation related to farmer characteristics

Several studies have found that there is a self-reinforcing division amongst Australian farmers where the better educated and informed are more likely to seek and participate in further learning opportunities than those less educated (Kilpatrick 1996; Kilpatrick *et al.* 1999a; Quinn 1999; Weatherley 2000). Other barriers are previous unsatisfactory experiences of education and training (Kilpatrick *et al.* 1999a; Reeve and Black 1998); a rural ideology that does not incorporate education and training as a valued part of farming (Fulton and Champion 1999); dysfunctional family relationships brought about by the multiple stresses faced by rural Australians (Reeve and Black 1998); farmer perceptions that developing their strategic thinking and business management are not relevant to their business goals (Kilpatrick *et al.* 1999a); lack of recognition of previous (unaccredited) learning (Napier and Scott 1994, cited in Kilpatrick *et al.* 1999a); and in males, increasing age, and

distrust of the vested interests behind some training delivered by private organisations (Kilpatrick *et al.* 1999a).

Barriers specific to women's participation in learning and management in the agricultural sector have been examined by Elix *et al.* (1998); Reeve and Black (1998); and Kilpatrick *et al.* (1999a). Barriers to education and training include male domination of mixed-gender training activities; lack of access to childcare (Kilpatrick *et al.* 1999a), and in farms where there is a traditional separation of farm and household tasks women's participation is markedly lower (Reeve and Black 1998). Barriers to participation in management include time, other commitments, self-confidence, stereotyping and male attitudes (Elix *et al.* 1998). ANTA has recently prepared a paper segmenting the different types of learners, including strategies for engaging these learners in training (ANTA, 2000).

5.3 Barriers to participation related to characteristics of individual and institutional providers of education and training

Several researchers have identified the 'social distance' between farmers and scientists and/or industry leaders as a source of poor communication and lack of understanding between farmers and those intent on setting the agenda for change in agriculture (Millar and Curtis 1999; Kilpatrick *et al.* 1999a; Abel at al 1998; Vanclay 1999). Indeed, the traditional attitude of scientists and extension agents that it is they that should be setting the agenda for farmer learning and change is seen as a barrier to more participative and farmer-directed forms of learning (Rose 1996; Virtual Consulting Group 1999).

Vanclay (1999) argues that the technical bias of research organisations, extension agencies, and their staff and their subsequent failure "to acknowledge that farming is a social and cultural activity is responsible for the limited success of extension." A 1996 survey of people and organisations involved in extension delivery revealed a recognition of this in some organisations (Rose 1996).

Millar and Curtis (1999) found that providers place insufficient emphasis on the processes through which effective learning can be ensured compared to the content of information packages, thus hampering the uptake and use of that information. Elix *et al.* (1998) identified several barriers to women's participation created by the attitudes and behaviour within agricultural organisations.

The credibility of learning providers in farmers' eyes has also been identified as a barrier. An opinion that the TAFE system lacked credibility was expressed in Rose (1996), and Marsh and Pannell (2000) state that a lack of knowledgeable staff amongst providers leads to farmer disinterest.

5.4 Barriers related to learning content

Morgan (2000) found that content was the most important factor influencing farmer participation in learning activities. Several researchers have found that if information or training is not seen as relevant and applicable by farmers they are unlikely to access or use it (Keen and Stocklmayer 1999; Kilpatrick 1996; Kilpatrick *et al.* 1999a). Beer *et al.* (1996) report a similar finding in organizational management literature that shows change is resisted if lower level managers cannot see a connection to their business goals. This also relates to research, with the lack of relevance of research and research findings to tackling industry issues being identified as a significant barrier to extension in Rose (1996).

The volume and diversity of information now available is contributing to a perception of information overload (Marsh and Pannell 2000; Kalim Quamar 1999) and there was a concern expressed in Rose (1996) that insufficient integration between all those providing information is giving mixed messages to farmers.

5.5 Barriers related to accessibility of learning opportunities

Gaps in provision due to the decline of public extension services and subsequent market failure to fill those gaps have been identified (Rose 1996; Carney 1998; Marsh and Pannell 2000) as well as uneven information delivery (Marsh and Pannell 2000). For education and training that is available, publicity, the length, location (and amount of travel) and scheduling of programs, as well as the availability of childcare all affect participation (Kilpatrick *et al.* 1999).

An international review by Kalim Quamar (1999) found that poverty was a major barrier to technology transfer and while he emphasised absolute poverty in developing countries, it is probable that relative income levels between farmers in Australia affects their opportunities for learning with studies indicating that many education and training opportunities are mainly targeted or accessed by the top 10-20% of farmers (Murray-Prior and Hart 1998, cited in Kilpatrick *et al.* 1999a; Rose 1996); low profit reduces participation amongst beef producers (Quinn 1999); and income affects access to information technology (Groves 1999).

5.6 Barriers related to the method of delivery

Various researchers have stated that a reliance on limited approaches for communication has been inadequate in the face of the diversity of the farming community (Vanclay and Lawrence 1995; Rose 1996; Keen and Stocklmayer 1999), leading to calls for more diverse communication strategies (Rose 1996; Keen and Stocklmayer 1999), as well as locally adapted ones (Rose 1996). In Rose (1996) there was a call for complementary information systems across states to avoid duplication. Other research has examined methods through which farmers prefer to learn (Kilpatrick 1996; Kilpatrick and Rosenblatt 1998, cited in VCG 2000; Marsh and Pannell 2000), with Kilpatrick and Rosenblatt (1998) calling for participants to be given greater control in training situations following their finding that farmers prefer information seeking activities to traditional training.

Barriers to the use of information technology as a vehicle for education and training that have been identified include uneven service provision in regional Australia; low levels of internet access, with access highly skewed toward those with higher education levels; lack of content; lack of user demand; a view that internet-based learning is inferior in quality to traditional delivery methods (a perception that is contradicted by research); and questioning of the economics of providing education over the internet (Groves 1999; Groves and da Rin 1999). Groves 1999 argues that many of these barriers are temporary and will be reduced as familiarity with, and penetration of, information technology increases. Bryant (1999) found that a perception amongst some farmers that office work was not 'real' work, the financial cost and time involved in purchasing computers and the time to gain skills constrained the purchase of computers by farmers. Amongst those that do use computers, Bryant (1999) found that a perceived split between 'inside' and 'outside' work explained why some farmers do not integrate computer use in farm management but use them only as electronic forms of book-keeping.

5.7 Conclusion

The research on barriers to participation is limited in its depth and breadth, particularly in terms of understanding who is participating, why and what can be done to address barriers to participation. Little data has been collected on actual farmer participation in learning and change opportunities. Little is therefore known about potential untapped opportunities or problems with current provisioning. Further work is required to increase the awareness of the need to collect participation data. Reasons for and against participation in all forms of learning opportunities need to be further explored. Only in doing this can appropriate education products be delivered in an effective manner.

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7. Appendices

Appendix 1: Existing and potential innovative approaches to creating demand for learning and change

Joint Research and Development Corporation Briefing Paper 2

Existing and potential innovative approaches to creating demand for learning and change

By Amabel Fulton[1], Andrea Clowes[2], David Fulton, Tim Tabart[1], Peter Ball, Scott Champion[1] and Jane Weatherley[1]
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Executive summary

This briefing paper identifies existing and potential approaches to creating demand for learning and change. The paper was developed through a review of the literature (reported in briefing paper 1) and a broad consultation process with more than 60 potential investors, researchers, practitioners and customers.

The paper identifies current and innovative approaches in four key areas:

1. Institutional change and organisational structures supporting learning and change
2. The professional development of farm advisers including their structural arrangement and careers
3. The facilitation of enhanced learning/change processes on farm
4. Better understanding of the barriers to participation in learning opportunities

The broad definition used for each of these areas is presented at the beginning of each section.

Innovative approaches were considered to be those that were not in common use in Australian agricultural extension and which were also considered to be, or have potential to be, effective and efficient. The many approaches and examples described in the report are summarised below.

1. Existing and innovative approaches to institutional change and organisational structures supporting learning and change

Extension policy

- Develop systems for determining who should do what
- Government's role in research depends on type of research
- Government's role in research depends on the stage of technology development
- Government should invest in infrastructure to make markets possible
- Development of extension policy can facilitate change

Improve extension provisioning

- Improve institutional accountability
- Focus on industry development to extend Research and Development
- Have many systems, approaches and institutional structures
- Improve linkages among research, extension and farming communities.
- Encourage partnerships between public and private extension
- Develop research-extension links to support local knowledge
- Institutions will need to change to adopt participatory approaches
- Incorporate technology transfer requirements into Research and Development applications
- Look outside agriculture
- Reward researchers for communication
- Develop the extension research capability

Examples of extension systems displaying positive characteristics

- Changes to the suppliers of extension
- Decentralisation, mixed private and public roles
- Farmer driven provisioning
- Extension by private companies
- Groups of companies-producer associations providing extension services
- Extension providers share-cropping with farmers
- Commodity organisations
- Non government organisations (NGOs) and farmer organisations

2. Existing and potential innovative approaches to the professional development of farm advisers including their structural arrangement and careers

- Use extension policy development to support extension practitioners
- Use client groups to support practitioner development
- Provide in-service training
- Establish the market for professional development of extension practitioners
- Develop useful training guides
- Offer conferences, networking activities and publications
- Focus on developing human capacity

3. Existing and potential innovative approaches to the facilitation of enhanced learning processes on farm

Focus on client needs

- Focus on farmer-led extension
- Use participatory approaches to make research more client oriented
- Plan sustainable agricultural development *with* the local community

Design effective learning programs

- Design a learning program to achieve success, not failure
- Work with all members of the agricultural community to achieve change
- Learn from others bringing about change
- Focus on meaningful benefits
- Have clear goals and good communication
- Use specialist advice to develop programs
- Choose a delivery method that suits the participants
- Create discomfort in a safe environment
- Focus on making an impact
- Use flexible delivery approaches
- Use action learning
- Address social needs
- Understand the people and the system
- Find ways of motivating people

Groups

- Use and value farmer knowledge in group learning
- Farm businesses evaluating and advising one another
- Encourage self-managed farmer learning groups
- Link scientists and producer groups through private consultants

New technologies and publications

- Use of internet for education and training courses
- Extension should provide support for dealing with information overload
- Avoid total reliance on any single information system
- Simulation games
- Use Sky channel
- Produce branded products to meet client's needs
- Develop reports people want to read by talking to the readers

Other approaches

- Following through on benchmarking
- Support youth in agriculture
- Using local people to complement "formal" programs
- Have formal mechanisms for advancing agricultural education and training
- Take a team approach to extension
- Develop and pay high performers to do the extension

4. Existing and potential approaches to overcoming barriers to farmer participation in learning activities

- Address the distance between farmers and science
- Provide access to extension services
- Involve women
- Make information more accessible through the Internet
- Make research reports more accessible
- Use farmer knowledge
- Make science more understandable to farmers
- Help farmers deliver their own extension
- Make participation relevant to clients needs
- Promote agricultural science to rural youth
- Institutions promoting the benefits of training
- Major changes in an industry create demand
- Increase the emphasis on creating a demand for change
- Target all members of the farm family
- Target women
- Continually build awareness of new approaches
- Understand and address clients' needs
- Education creates demand for education
- Use existing networks
- Understand the customer
- Segment the market

Overall, this report presents many innovative approaches to agricultural extension and change. This list is, however, incomplete. A broader and more detailed survey of agricultural extension in Australia, and of the international literature would illuminate more innovative practices. While this report may serve as a useful list of suggestions for those involved in agricultural extension, more evidence is required to determine whether or not the approaches are effective or efficient, and under what circumstances they would be so.

The contents of this paper, and the three other briefing papers[3], were circulated for feedback, and discussed at a workshop in Melbourne at the end of August 2000.

[3] Briefing paper 1: Summary of relevant recent and current R&D on agricultural extension, learning and change. Appendix 2 - briefing paper 3: Existing and potential innovative approaches to creating demand for learning and change. Appendix 3 - briefing paper 4: Communication of developments in extension research and practice to Australian extension providers

Introduction

This briefing paper aims to identify existing and potential approaches to creating demand for learning and change. The paper was developed through a review of the literature (reported in briefing paper 1) and a broad consultation process with more than 60 potential investors, researchers, practitioners and customers.

The paper identifies current and innovative approaches in four key areas:
1. Institutional change and organisational structures supporting learning and change
2. The professional development of farm advisers including their structural arrangement and careers
3. The facilitation of enhanced learning/change processes on farm
4. Better understanding of the barriers to participation in learning opportunities

The broad definition used for each of these areas is presented at the beginning of each section.

For the purpose of this report, the term extension was used to include any advisory, consulting, technology transfer, research, training, marketing, industry development, learning, change, communication, education, attitude change, collection and dissemination of information, human resource development, facilitation, or self-development activities that are undertaken with the aim of bringing about positive change on farms and in agriculture.

Innovative approaches were considered to be those that were not in common use in Australian agricultural extension and which were also considered to be, or have potential to be, effective and efficient. In some cases further research is required to verify the efficiency and effectiveness of these approaches, and the circumstances under which they would be appropriate. Some of the recommendations and examples have already been presented in some detail in Briefing paper 1. However, to ensure this paper can be used as a stand-alone document, they have been repeated here. In addition, where some reports are relevant to more than one of the key areas, this is reported.

The extent to which these approaches are innovative will depend on the knowledge and experience of the reader. The 'collection' of approaches presented here is not complete or systematic. It reflects the ideas presented in the agricultural extension literature in the last three years, plus those of the subjects. It is designed so readers can examine the range of ideas on effective and efficient extension, and selects ideas and approaches that are relevant to the readers' circumstances.

The contents of this paper and the other three briefing papers were discussed at a workshop in Melbourne at the end of August 2000.

1 Existing and potential innovative approaches to institutional change and organisational structures supporting learning and change

The current Australian institutional and organisational structures supporting learning and change processes include state and federal departments of agriculture and natural resource management; private extension providers; private agricultural businesses; vocational education and training providers; the national training authority; state training authorities; industry training advisory bodies; research and development corporations; Universities; farmer organisations; and other non-government organisations. These existing structures and institutions may have elements that foster learning and change processes (such as their links with industry), and elements that do not (such as the way they reward their staff). The relationships between each of these organisations (e.g., public and private; research and extension) will influence learning and change on-farm.

1.1 Policy issues

Develop systems for determining who should do what

Carney (1998) cites a range of recent papers that deal with the economic characteristics of goods and services, and reports that the common framework is to classify items in terms of two key properties:

Excludability – if individuals don't pay, they don't receive

Subtractability – one person's consumption excludes others from receiving it

Carney (1998) proposes the following framework:

Subtractability	Excludability	Type of good
✓	✓	Private good
×	×	Public good
×	✓	Toll good
✓	×	Common pool good

After Umali and Schwartz (1994)

Only where a good or service is highly subtractable and excludable is it a candidate for private provision. Carney (1998) suggests that if supply of any of the other goods and services is left to market mechanisms there will be undersupply and a loss in economic efficiency.

Government's role in research depends on type of research

Umali and Schwartz (1994) report mechanical technology to generally be highly excludable and extractable and therefore attractive to private providers. Chemical research is next most attractive, followed by biological research. At the end of the spectrum lies agronomic research that is considered neither excludable nor extractable, making that research least attractive to the private sector.

Government's role in research depends on the stage of technology development

Dray and Echeverria (1991) propose that government should play a role in each of stage of technology development (pre-technology, prototype technology and useable technology). They suggest that the government's role is:

"to stimulate the flow of technology in the market and to help overcome the most difficult technological barriers which might otherwise reduce private sector research."

Consequently, pre-technology research requires full government support, prototype technology requires shared private and public supply, and finally with useable technology, government should promote competition for efficient marketing of the product.

Government should invest in infrastructure to make markets possible

Carney (1998) proposes that in order to improve efficiency governments should withdraw from areas where markets function and invest in infrastructure that makes markets possible. Cutting costs within organisations has been achieved by just getting rid of people. But cost cutting without regard for "effectiveness of services" is counterproductive (Carney, 1998). It is often more appropriate to find cheaper ways of undertaking activities, such as building new partnership with other organisations, rather than reducing the workforce.

Development of extension policy can facilitate change

Coutts (1995) in his paper on developing extension policy for an institution highlighted the benefits obtained through collaborative development of policy, having the policy itself and enacting it. Guidelines generated from this Australian work to permit formal extension policy to more effectively play a role in facilitating change were:

- Negotiation/review of extension policy should occur every two to three years. This would limit reactive political content while providing scope for modification if this were to be required by stakeholders.
- The focus of formal extension policy should be on; defining the changing societal reason for the extension function, supporting the structures for undertaking extension, and the constraining conditions requiring management which impact on extensions capacity to function.
- Prescriptive operational imperatives should be avoided at the formal policy level. This moves the monitoring of policy implementation away from establishment of prescribed structures to evidence of processes.
- The focus of extension policy should be on the iterative *process* of negotiation rather than the formal policy document itself. The negotiation and debate with stakeholders is the key to increasing the value and the power of the policy.

1.2 Improve extension provisioning

Improve institutional accountability

Where governments continue to act, accountability should be deliberately pursued. "Advantages in this lie not only with increased efficiency and effectiveness but also strengthening civil society" (Carney 1998). Public sector cost recovery systems can contribute to accountability. When consumers pay for a good, they express and enforce satisfaction of their needs (Merrill Sands and Collion, 1993). Accountability can be improved through strengthening links between rural people and the public sector. There should be incentives for public sector employees for actually meeting the needs of clients.

Focus on industry development to extend R&D

The horticulture industry funds a number of Industry Development Officers (IDO) for their different industries. Van Beek (1998) reviewed the role of these officers and concluded that the emerging regional/State and national networking system fulfilled the needs of industry and government efficiently, effectively and with full grower support. Interviewees reported that the growers 'own' these positions and in some cases the officers help growers do their own research. Officers have also been involved in taking growers on overseas study trips and interstate bus trips.

Have many systems, approaches and institutional structures

Haug (1998) reports that up to 20 years ago, debate was concerned about finding the *"the best extension system"* and *"the best approach"*. Haug (1998) proposes that the debate now recognises the importance of situation specificity and the emphasis is on pluralism with regard to provisioning (institutional structure), financial viability, programmatic strategies, controlling mechanisms, communication technologies, decentralisation, participation and local knowledge systems. Haug (1998) continues that blueprint solutions don't exist, they need to be tailored to national capacities and regional needs. Christopholos and Nitsch (1996) in (Haug 1998) propose that the question should no longer be how the government should manage agricultural knowledge and information systems, but rather how it can support the needs of specific target groups and meet specific objectives.

Interviewees reported that Target 10, a dairy extension program run by the Victorian Department of Natural Resources and Environment (DNRE) highlighted need for a range of mechanism, such as the following:

- an education experience;
- peer support experience;
- on-farm problem solving;
- one on one consulting; and
- a community environment that supports change.

This approach was very similar to the approach used by the Victorian Anti Cancer Council to help people quit smoking.
Interviewees reported a partnership approach being used in Australia. For example, the Victorian Property Management Planning (PMP) team has focused on particular industries and communities. It has seen the opportunities and benefits of a partnership approach with other providers for example with the dairy industry, with Melbourne University and with the meat industry's Edge Network. Woolmark promotes leverage with other programs by using others in agencies that are "on the ground". Other organisations do similarly, seeking to use the best institutions, people and tools available to achieve the desired outcome.

Processes to facilitate cross-industry and cross-sectoral learning have been recommended by Prinsley (1996). McKenzie *et al.* (2000) developed strategies for improving human resource development in the Australian dairy industry, recommending the adoption of a shared national extension vision to achieve an extension system that is learner-centred and demand driven.

Improve linkages among research, extension and farming communities.

Kalim Qamar (1999) proposed that;
"*In order to develop appreciation for the concern of each stakeholder, the researchers, extension agents, and producers need to keep in touch with one another and exchange information experiences, and problems through appropriate organizational structures and administrative practices, personal meetings, and through media and technology- based systems.*"

Encourage partnerships between public and private extension

Haug (1998) reviewed some of the leading issues in international agricultural extension. He proposed that there are many opportunities for improved extension provisioning through integrating the activities of the government with other organisations. Haug (1998) highlights some of the potential resources such as the private agricultural supplier's superior links with farmers, and farmers learning from other farmers, as under-utilised resources available to extension. Haug (1998) also cites examples of governments sub-contracting private extension services and purchasing existing services in order to improve provisioning.

Haug (1998) proposes that where a pluralistic extension system operates, the main role of government should be to provide a regulatory framework to ensure low-cost of extension, access, and competition for provisioning and quality of service. Haug (1998) also raises issues of funding, cost sharing, client targeting and delivery channels.

Although extension is about knowledge and development of human resources, and as such, is more involved than just supply of seed or fertiliser, Haug (1998) suggests that fruitful partnerships between private and public sectors could be developed. Likewise, within an appropriate organisational structure, the potential for conflicting interests within such partnerships could be addressed.

Develop research-extension links to support local knowledge

Haug (1998) reports that over the last two decades, local knowledge of farmers and farmers' capacities as experimenters have been increasingly recognised. He suggests that one of the challenges facing extension and research is to interface between modern knowledge and people's knowledge. However, Haug (1998) questions whether current linkages between research and extension are existent or strong enough to allow this to happen. He proposes that there are a myriad of opportunities for building upon peoples knowledge, building formal and informal information systems and recognises that farmers have the ability to conduct their own experiments.

Institutions will need to change to adopt participatory approaches

Duvel (1995, in Haug 1998) suggests that with the change in emphasis in extension away from technology transfer to a facilitative approach where extension is focused on communities rather than individuals, this has implications as far as institutional structures are concerned. For example, Ashbye and Sperlberg (1995) proposed that incorporation of participatory approaches to research and extension would require significant organisational, methodological and attitudinal shifts among all partners involved in public research and extension.

Incorporate technology transfer requirements into research applications

Interviewees reported that the Rural Industry Research and Development Corporation (RIRDC) and the Horticultural Research and Development Corporation (HRDC) ensure that every project that is funded incorporates an extension or technology transfer section. RIRDC also allocates communication funds that are additional to the project funding to ensure that money is available for videos, meetings and web pages. This is done to ensure that outcomes are met. Projects need to show:

- technology transfer strategies
- mechanisms for communicating outputs
- how is the communication strategy to be evaluated
- who is the target audience.

Look outside agriculture

Few new ideas enter the agricultural industry because of the lack of external input into thinking within the sector. Significant gains in innovation and attitude change may be attainable through systematic cross-industry and cross-sectoral programs of activity and other processes (Prinsley 1996).

Reward researchers for communication

Keen and Stocklmayer (1999) reviewed the communication efforts of rural industry research funding bodies in Australia. The key recommendations were the need to:

- clearly define communication expectations and roles
- set consistent communication requirements
- develop evaluation procedures which allow the different approaches to be assessed over time
- better coordinate communication planning across research and development corporations
- increase the involvement of the researchers in the communication process
- work toward incorporating communication assessments in promotion criteria of researchers
- better assess the communication needs of private consultants working for research funding bodies

Develop the extension research capability

The development of a focused research and development program for extension, where issues and priorities are determined by a joint committee of industry stakeholders, is recommended by the Australasia Pacific Extension Network (APEN). It also recommends a designated national centre for extension research with a minimal operating core and a network of contributing research nodes.

1.3 Examples of extension systems displaying positive characteristics[4]

Changes to the suppliers of extension

First world countries such as Britain and France are heading towards complete privatisation of agricultural extension services, while in other countries government has purchased private and non-government services. Carney (1998) suggests that generally, non-government participation in extension is most effective when government retains significant responsibility for the cost of service, and provides training equipment and monitoring. Examples where government involvement has been maintained include Chile, where the government's role is now coordination of private sector provision (Berdegue 1997); and Costa Rica, where vouchers are initially given to farmers to 'pay' for private extension provision, and then phased out over time.

Decentralisation, mixed private and public roles

Carney (1998) proposes, "China provides the most notable model of decentralisation and mixed public and private services". In China, groups of farmers pay for extension advice provided by Agrotechnical Extension Centres (AEC's). These AEC's link national and regional information as well as accessing information from research institutes, universities and individuals. Also in China, farmer organisations receive information from scientists and consultants who are invited to sit on their boards and become shareholders in market based enterprises.

Farmer driven provisioning

The Ugandan farmer driven option is an impressive example of a full alternative to public sector provisioning of extension (Carney 1998). The Uganda National Farmers Association (UNFA) established a 'demand-driven, cost recovery' extension service in a number of districts in Uganda. Upon request for training or advice, UNFA employees (who are often former public service extension agents), provide the service at full cost recovery rates. Carney (1998) suggests that the scheme is quite successful and has been requested to take over extension provisioning in at least one district.

Extension by private companies

According to Carney (1998), input supply companies, providing products such as seed, research and fertiliser are also in a position to provide information with their products. In most circumstances such companies only provide extension to 'market' their own products (Schwartz 1994; Umali and Schwartz 1994). Even so, Crompton (1997) sees such companies as potential providers of extension since they have regular contact with farmers and the existing 'network' required for extension provision. Schwartz (1994) noted this was the case regardless of whether the private company was trying to sell supplies or purchase quality product from growers.

Groups of companies-producer associations providing extension services

Carney (1998) identified that groups of companies sometimes act as publicity arms for their member companies and engage in activities without immediate commercial benefits. The Agro-chemical Industry Association of Zimbabwe's chemical safety program is one such example (Carney 1998). The association aims to obtain inexpensive chemical protection clothing for its farmers. A similar example of this type of activity is the Indian Fertilser Association, which publishes literature and sets up demonstration plots (Umali and Schwartz 1994).

[4] These have been reported in Briefing paper 1

Extension providers share-cropping with farmers

Carney (1998) reports that share cropping arrangements exist in Ecuador, where farmers supply land and labour and the government extension agent supplies advice and inputs. Ameur (1994) reports that farmer arrangements with unlicensed providers from outside the public sector are also common in China.

Commodity organisations

Commodity organisations have been successfully involved in extension of new production techniques and Carney (1998) cites several examples where such an organisation has had significant extension success.

Non government organisations (NGOs) and farmer organisations

NGOs often work in difficult and complex situations where government services are weak or non-existent. They provide services and methodologies for Research and Extension work that are often subsequently adopted by the public sector (Farrington and Ameur 1991). Carney (1998) suggests that farmer organisations, even though they are often both consumers and providers of information are not well positioned as providers of extension because among other problems they lack the financial and human resources that are needed. It is common to find that they are more interested in immediate issues, market access and price than extension (Collion and Rondot 1998). Even so, there are some public Australian exceptions such as the Birchip Cropping Group and the WA Lucerne Growers.

2 Existing and potential approaches to the professional development of farm advisers including their structural arrangement and careers

The Australian agricultural sector is supported by a wide and varied group of farm advisers, described here as extension practitioners. These include public sectors extension officers (including Landcare, Bushcare, Waterwatch etc.) private sectors consultants (on all aspects of farming, including farm management, personal relationships, finances, taxation, business development etc), agribusiness field officers, product sales advisers, stock agents, scientists and more. The professional development of these extension practitioners is linked to their ability to foster learning and change on farms and in agriculture. Their structural arrangements (such as length of contract and opportunities for professional development) and their career opportunities, influence the agricultural sector's ability to support on farm change.

Use extension policy development to support extension practitioners

The implementation of a formal extension policy in Queensland Department of Primary Industry (Coutts 1995) provided some purpose, process and role definition to support the extension practitioners and their activities. However, an initial limitation was a lack of involvement of operational staff in taking the strategic policy recommendations to implementation. This resulted in a need to further develop discussion and ownership and hence commitment to the program. Despite this, the process of formal policy implementation provides a foundation to the practitioner's work environment.

Use client groups to support practitioner development

The local client groups described by Coutts (1995) could similarly support practitioner development by providing evaluation, and program selection and development advice. The author indicated that this concept of client groups allowed for the provision of non-prescriptive strategic direction. This could be a sound tool for use in the development of the practitioner's role and function, as a primary step to developing the skills and training required of the practitioner.

Provide in-service training

The development of the Rural Extension Centre (REC) to provide in-service extension training, and also to facilitate research supporting extension, was an innovative proposal resulting from the QDPI policy development process described by Coutts (1995). The author described the proposal for the centre as indeed central to enabling change to occur. This could refer to change within the organisation and the conduct of its business, and thus by implication change also within the agricultural community. Training of staff to meet new pro-active, participative and adult education orientated directions desired by the organisation was indicated.

Establish the market for professional development of extension practitioners

Straw *et al.* (1996) suggested that training offered by the many organisations that participate in the development of extension practitioners can be enhanced in some important areas. This could include the establishment of the market for the training, and paying more regard to understanding what the employers and extension practitioners wanted, and also how graduates currently performed in their various roles. This approach would then be supported by incorporating key competencies into the present course structures. It was also suggested that there be wider involvement of employers, practitioners and clients in course development.

Develop useful training guides

Veldhuizen *et al.* (1997) presented a guide to the development and training of deliverers in participatory learning and technology development. This guide gathered the experiences of many trainers and practitioners, using an international workshop on training in participatory technology development as its foundation. Activities and underpinning knowledge and philosophy are presented in an operational and experiential context. There is a focus on outcomes and most importantly the guide has been subject systematic review and revision by users.

Offer conferences, networking activities and publications

The Australasia Pacific Extension Network (APEN) provides conference, networking and publication services to extension practitioners. Annual APEN forums allow for a range of subject matter to be offered through concurrent sessions. The process is people inclusive rather than formally structured. APEN branch activities have held a number of seminars on extension, marketing, community education with speakers from health, police, commercial marketing, looking at different methods of community learning and behaviour change.

Focus on developing human capacity

In creating change, the Rural Extension Centre focuses on four areas for development of the human capacity of extension practitioners:

1. Thinking skills (creative, critical thinking, problem solving skills to take focussed action)
2. Skills to provide leadership and give people confidence to manage change now and in the future
3. Awareness of the issues
4. Being dynamic rather than passive

3 Existing and potential approaches to the facilitation of enhanced learning processes on farm

Extension, as defined in the introduction, aims to bring about positive change on farms and in agriculture. This largely involves the use of processes to facilitate learning and change within the agricultural community. These processes, or 'extension methods', include groups, media, field days, education, advice, facilitation, lead farmers, focus farms, demonstrations, videos, publications and more. Extension also includes the process of planning research and extension, from understanding client needs, developing a plan, appointing staff and implementing and monitoring a program, through to evaluating impact.

3.1 Focus on client needs

Focus on farmer-led extension

Haug (1998) reports that *"participation"* is a word that is used a lot in the literature, is ill defined and therefore means different things to different people. He suggests that *"farmer-led"* is a useful alternative and goes on to define this term in the following way;
"In farmer-led extension, agents should participate in farmer-defined activities, farmers being the primary actors"

Haug (1998) reports that in spite of a significant body of literature on participative approaches, extension programs purportedly using such methods are generally still not working well in the field, and he questions why there is still such a gap between extension theory and extension practice. In addressing this question Haug (1998) raises a series of questions such as; is it just a question of time, is there commitment to the participatory approach, or are the issues with power relations that are holding back the success of this approach?

In Australia, the federally funded farm business management training program, FarmBi$, provides funds for farmers to attend training and allows choice in what is selected. Some of the wool industry programs take a different approach to learning. Bestwool 2010 encourages the growers to decide on their priorities for learning and change. Bestprac focuses on the grower determining whom they want to use as a facilitator.

The Sustainable Grazing Systems Program of the meat industry delivers an extension program driven by a producer committee, which develops local on farm issues affecting grazing systems and then develops an extension package for each "area" based around a region demonstration site of field days, on-farm courses (Prograze) and workshops. All of these are developed and organised by farmers.

Use participatory approaches to make research more client oriented

Kalim Qamar (1999) suggested:
"If the technology transferred addresses the needs of its potential users, it has high probability of being adopted. The generation of such demand-driven technology is only possible if the research agenda is drawn on the basis of real-life field problems".
A participatory research approach, where researchers, extension agents and growers have a chance to express their concern is proposed by Kalim Qamar (1999) as a way of ensuring appropriate research is conducted.

Dore (1997) presents the findings of a process of consultation with farmers to review and further develop sustainable agricultural indicators. A draft guide of on-farm sustainability indicators was used in discussion groups with farmer to debate sustainability policies in general, and the various indicators in particular. Comments on the usefulness of each indicator were received from about 180 farm

businesses. This feedback was used in the further development of a set of practical indicators for on-farm use.

In Australia, Woolmark provides avenues for growers to directly access funding for on-farm research through the Producer Initiated Research and Development program (PIRDs).

Plan sustainable agricultural development with the local community

Economic Renewal is a process for organising and conducting a series of community meetings that can lead to sustainable economic development. The process is detailed in a guidebook and has been field tested in many towns since 1986 and is based on practical experience in communities. It takes the approach of integrating economic, community and environmental concerns. Community residents and leaders choose development projects through a thoughtful process that minimises controversy and maximises creativity (Kinsley 1997). The process is carried out by a small team of residents with the help of a larger group of volunteers and sometimes a professional facilitator. The number of participants varies from 25 to 200. It takes between two and six months, culminating in the development of project action plans. This process is being trailed in the Derwent Valley of Tasmania (Tabart 2000).

Dunn *et al.* (1996) have used the Creative Problem Solving Methodology (after Robert Chambers) to improve the process of community consultation between Wagga Wagga City Council and residents/landholders in land use planning, control and development. The work is driven by a desire to avoid conflict and adversarial reactions - to find a collaborative learning way to resolving differences and to help the council meet its community consultation obligations.

In Australia, Macquarie Valley Landcare started with a natural resources management strategy and determined the need for a community strategy. The group formally interviewed 700 people via a pyramid interview technique. The information that was gathered was used to process information sheets on major issues and to prepare a strategy.

3.2 Design effective learning programs

Design a learning program to achieve success, not failure

Alexander *et al.* reviewed the factors affecting the outcomes of 104 learning activities delivered through information technology projects and identified factors contributing to successful and unsuccessful learning outcomes.

Most of the following characteristics were required for a successful learning outcome.

1. The project aims to address a specific area of learner need
2. The project uses a well thought through and informed learning design or strategy
3. The project's integration into the learning experience is well thought through for providers and learners
4. The anticipated outcome is realistic in terms of time and budget
5. Projects involving software development have had this done before the project starts
6. The project has a skilled project manager
7. Providers have access to technical support and expertise
8. There are shared goals within the team and ability to deal with conflict
9. Team members are committed and have adequate time
10. The project is continuously evaluated and re-designed as necessary
11. Learners have adequate access to equipment and support
12. The institution is committed to the project, funds it, allocates time, and rewards those involved

If one or more of the following factors occurred, the chance of success was significantly reduced:

1. Not doing one of 4, 5, 6, 7, 8, 10, 11, 12 above
2. Using technology for its own sake, without sufficient regard for appropriate learning design
3. Failure to plan for implementation
4. Acting on incorrect technical advice
5. Team members thought they were technically competent but were not
6. The project did not prepare learners for participation in new learning experiences such as working in groups
7. The project over-estimated learners willingness to engage in higher level learning activities

Work with all members of the agricultural community to achieve change

The extension program 'Wormplan' reduced drench resistance in the wool industry by worked with agribusiness, rural merchants and private veterinarians to leverage its own extension efforts with farmers (Fulton and Champion 1998). The program was more effective than its counterparts in other states and more efficient in its use of resources. By the end of the program the rural merchandising firms were incorporating the key messages of Wormplan in their advertising copy; private veterinarians were providing fee-based Wormplan services to farmers; rural merchants were advocating best practice drenching practices; and many farmers were undertaking their own monitoring and evaluation of their practices. Quinn (1999) suggests cattle breed societies and seedstock producers can have a useful educative role in encouraging improved farm practice.

Learn from others bringing about change

Programs in other sectors offer us innovative approaches. Many of these are public programs that extension people are the recipients of, such as SunSmart, Keep Australia Beautiful and the introduction of the GST. A less well-known program is Vipassana, an intensive technique of personal insight (Bedi 1999; Meijor 1999). Vispassana has been taught within prisons to inmates and staff, correcting the root causes of addictive and anti-social behaviour patterns and developing beneficial behaviours such as generosity, honesty, compassion and tolerance. Vispassana is seen within the prisons as a holistic means to address an array of interconnected behaviours and has amongst other things increased the effectiveness of other educational activities within the prisons.

Focus on meaningful benefits

The Grains Research and Development Corporation (GRDC) focuses on sustainable profitable solutions. It targets financial benefits to growers and involve producers in research. Meat and Livestock Australia (MLA) uses values-based marketing that concentrates on using clear market signals to drive change. An example of this is the Meat Standards Australia.

Have clear goals and good communication

The Farming Systems Project (South Western Queensland) is a GRDC project that has reached 46% of producers. This project has clearly defined goals, shared vision, strong leadership and a good communication process. These have all helped determine the success.

Use specialist advice to develop programs

The Dairy Research and Development Corporation (DRDC) has used consultants (both communication and agricultural consultants) to help them develop their approaches.

Choose a delivery method that suits the participants

In bringing about change with participants, one interviewee said that they deliver information in a way that it is most comfortable for the participants to be able to hear it. If they do not hear the message, then the process is considered to have been ineffective.

Create discomfort in a safe environment

There is a need to create discomfort, however if this discomfort is created in an unsafe environment, it becomes counter productive. To create a safe environment, participants are encouraged to explore their own awareness. This widens participants' choices and facilitates change.

Focus on making an impact

An approach that the Rural Extension Centre (REC) promotes is to focus on what makes a real difference to achieving specific outcomes. These generally tend to be high impact things. People are also encouraged to stop doing things that don't make a real difference.
Techniques that are used are:

- Systems dynamics
- Change and innovation models (these are both computer based)

Use flexible delivery approaches

Property Management Planning uses a flexible delivery mechanism. The program adopts a co-learning approach that affects and interacts with culture. Property Management Planning invested time and money in training facilitators using Geoffrey Stibbard to introduce hard selling and closing the deal to the team.

Use action learning

Involving farmers directly with learning the tools and processes used in training has been successful for some programs. The Farming Systems project of Grains Research and Development Corporation looks at different ways that people interpret problems, issues and research on farm. Action learning processes are used throughout the workshops to encourage participants to want to use the tools in "real time" on their own properties. A review of the process allows participants to learn from each other, with the subsequent uptake of the program being very successful.

Address social needs

One of the subjects suggested the reasons for Landcare's success was its provision of a social replacement for religion and other declining social activities. Other success factors were:

- It was an internally driven program with high ownership.
- It was based on an immediate need
- It targeted single issues first and developed into more holistic approaches

Understand the people and the system

To achieve maximum leverage from existing organisations and people, providers need an understanding of the problem and the people who influence change. If there is an understanding of how the people, the community and the industry work, and who makes decisions, the issues can be addressed quickly and more directly.

Find ways of motivating people

The Indigenous Land Corporation (ILC) has attempted to decrease welfare dependency. It responds to requests that are basically for money. The Indigenous Land Corporation networks with other agencies and organisations and works on how to motivate people for things other than money.

3.3 Groups

Use and value farmer knowledge in group learning

Groups can use farm knowledge to improve the effectiveness of their activities. One group studied by Millar and Curtis (1999), for example, used farmer knowledge to provide a local, practical and integrated approach to pasture development and management. The group capitalised on the knowledge a local farmer had gained from 20 years of trial and error with pasture establishment by getting him to conduct a pasture management course. In the same study, a more formal grazing management course used farmer knowledge to apply scientific principles to real farm situations and provide comparative information. Millar and Curtis (1999) concluded that in both cases, farmer knowledge established relevance or purpose for activities, and brought practical experience, historical information, an holistic approach and a diversity of views and backgrounds.

Farm businesses evaluating and advising one another

Executive Link® is run nationwide by Resource Consulting Services to assist farm businesses to address the issues that limit the profitability of the business. The program involves the formation of boards of five to six farm businesses that meet for three days, three times a year, for three years to review each other's business performance and proposals and to undertake professional development activities. Kilpatrick and Bell (2000) evaluated this approach and found that through improved communication, the diverse goals of family members were acknowledge and incorporated into better planning and direction for the business.

Encourage self-managed farmer learning groups

VCG (1999b) developed two farmer groups to work on topics of their own interest. After a one-day training and planning workshop and a couple of group meetings, the groups took responsibility for their own management. Participants found the groups to be beneficial and were willing to pay the operating costs of future groups, such as coaching and administration. VCG (1999b) recommended the project required a second phase of training of coaches and administrators, a central point for information about the groups, and accessible support. Promotion via existing networks and endorsement from leaders would assist the uptake of such groups.

Link scientists and producer groups through private consultants

In New Zealand, research institutions facilitate the development of growers groups as a tool for maintaining links between research and production. These are initially run by the research scientists, meeting with growers and agricultural consultants throughout the production season to provide integrated advice and support for decision making. After a period of a year or so, the agricultural consultants take on the role of managing the grower groups, paid for by the growers. The scientists then interact with the consultants to provide assistance with grower advice and support. This system builds the skills of consultants and growers; improves relationships and feedback between researchers, consultants and growers; and allows clear separation of role between researchers and consultants.

3.4 New technologies and publications

Use of internet for education and training courses

Groves and Da Rin (1999) in their report on farmers and the internet, suggested that such technology is ideally suited for delivery of many types of education and training courses as well as for email, chat rooms, bulletin boards, and other information provision. They proposed that, currently, there was no evidence to indicate that there is any difference between the quality of computer-mediated on-line delivery than more traditional means. Furthermore, Internet delivery decreases both social and geographical barriers to participation and costs significantly less than traditional delivery systems. Groves and Da Rin (1999) argue that education and training are becoming increasingly important instruments of rural policy, but Internet access is highly skewed towards those with the highest levels of education in any case.
The electronic newsletter SEA News has been an extremely effective extension medium (in an awareness sense) for David Pannell's research team. Now into its 3rd year and 7th edition it has over 2000 subscribers, and recorded over 31,000 hits in 1999 (www.general.uwa.edu.au/u/dpannell/sustecon.htm). For the researchers involved, it gives constant feedback from a wide range of people all over Australia, and ensures that research is disseminated as quickly and as widely as possible.

Extension should provide support for dealing with information overload

Kalim Qamar (1999) in his report on effective information systems for technology transfer, highlighted some key issues for improving extension provisioning in an environment which is becoming increasingly cluttered media and computerised information systems. He considered that in the situation where growers were effectively becoming victims of excessive information, support from extension staff actually becomes more important.
"Such support includes activities like farmers training, field demonstrations, monitoring, follow-up and evaluation, and above all building up farmers' moral and confidence, which cannot be provided through any media-oriented or ... technology based systems"

Avoid total reliance on any single information system

In order to achieve maximum benefits, Kalim Qamar (1999) proposed that it makes sense to select a range of real-life, and technology based systems, since every approach has both strong and weak points.

Simulation games

An interactive risk management workshop, "Risky Business" is a simulation game used as a tool in farming systems education (Stewart *et al.* 2000). It has been used with various client groups (extension practitioners, researchers, consultants, bankers, farmers, students) for facilitating learning and understanding of the principles of risk management. Participants in the workshops are responsible for managing a rural business. They experience the joys and stresses of decision-making under uncertainty. They learn the principles of risk management in an environment where they have fun competing and cooperating with each other[5]. An example is Salty Business. Agricultural professionals are placed in the role of a farmer and have to "manage" a typical Western Australian eastern wheat belt farm, located in a catchment under threat of dryland salinity, for a number of

[5] If you are interested in finding out more about "Risky Business" you should contact Amir Abadi, Touchstone Consultancy, 041 356 7121 (Email: aabadi@cyllene.uwa.edu.au).

seasons under conditions of climatic, yield and price uncertainty. The workshops provide an enjoyable and effective learning environment for agricultural professionals to gain an understanding about a range of issues (Marsh 1999).

Use Sky channel

Innovative approaches using technology has been successfully used in agriculture. One approach used satellite delivery of a message via sky channel. An insert went into the Ground Cover magazine called "Diseases from Space". A satellite delivery of a studio broadcast by several of the best consultant, extension and pathologist talent was conducted on cereal diseases. This was timed a month before one of the biggest disease outbreaks in recent time.

The panel discussion was broadcast to CRT agents across Australia. The owners had invited clients in for a viewing, a "sausage sizzle" and a discussion with specialist advisors who workshopped the issues. Distant growers phoned their questions in to the panel and heard the answers on television.

Produce branded products to meets client's needs

Branded information products like the "Ute Guides", "Back Pocket Guides" and TopCrop cards have increased the value of the package in the growers' mind.

Develop reports people want to read by talking to the readers

To address the lack of time for reading of research reports by end-users, Agribusiness Marketing Services (1998) developed an information product – the Research Snapshot - which adds value to existing information by highlighting the key findings in a brief user-friendly format. Through consultation with clients, Agribusiness Marketing Services (1998) determined the structure, layout and design elements of the Research Snapshot that are most important to the key clients. These were pre-tested and a writer's guide prepared. The approach has been adopted in the RIRDC Short Reports.

3.5 Other approaches

Following through on benchmarking

New approaches to supporting benchmarking programs are being implemented. This is in response to the lack of a supportive decision-making system to ensure 'better' information results in 'better' decision-making (Worsley and Gardener 1999). The Grains Research and Development Corporation (GRDC) program TopCrop has developed a process to assist producers to implement changes as a result of clearly understanding and interpreting their benchmarking data, as was the Dairy Research and Development Corporation (DRDC) program "Decisions for Action".

Support youth in agriculture

Milstein and Cameron (1998) demonstrated the value of the Young Achievement Australia Program, for the development of rural youth. The program was introduced some years ago to provide Year 11 students with the opportunity to gain skills in enterprise and innovation by participating in the setting up and running of a real business. Milstein and Cameron (1998) found that most participants regarded it as an outstanding feature of their education, several years after completing the program. The authors proposed the course might have value when offered outside the school curriculum to contribute to the development of future rural leaders and skilled farm business managers.

Using local people to complement 'formal' programs

Innovative farmers could be more formally trained and paid by industry, government or other farmers, to act as local community educators. In Western Australia, in the area of rural health, trained paraprofessionals who can mediate between the general community and the professional services, initiate and maintain programs that fill gaps in services, respond rapidly to community crises, work preventively with families and groups, and raise community well-being (Prinsley 1996).

Have formal mechanisms for advancing agricultural education and training

The Virtual Consulting Group (1999) suggests regional boards for the development of agriculture's human resources should be developed. The boards would adopt an advisory, research and planning, coordination and advocacy role that aims at enhancing general education, school and post-secondary retention rates in agriculture. The boards would also links to post-secondary providers to design and implement strategies. In Tasmania, the Tasmanian Board of Agricultural Education (TBAE) oversees the coordination and promotion of agricultural education for the state, having members from all of the public sector education/extension providers (University, TAFE, Department of Primary Industry, Water and Environment and the Department of Education) and from industry (Tasmanian Farmers and Graziers Association, and agribusiness).

Take a team approach to extension

The New Zealand extension approach was team based, with each member specializing in different technical areas, and supporting one another. It had an overall management focus for the services (business management, benchmarking, crop protection, plant protection etc.) Each team member had links with the researchers and they ran and attended forums. Much of the delivery was done on a 1:1 basis and this was complemented by group activities. Extension followed a whole farm and supply chain model. It went from free to a fee for service, which had impacts on staff performance, administration etc.

Develop and pay high performers to do the extension

The High Performance Groups Project included the following innovative techniques:

- They trained group leaders and facilitators in group facilitation techniques;
- They took fully formed groups and put the whole group through a team building process to enhance group performance;
- They took individual farmers and paid them to organize events about new technology.

4. Existing and potential approaches to overcoming barriers to farmer participation in learning activities

Barriers to participation in learning or change opportunities may be factors related to an individual, their spouse, their family situation, and the characteristics of their farm, business, rural community or industry. They may also be related to the content, accessibility or delivery of the learning or change opportunities presented to the farmer. The suggestions presented here relate to approaches used to address these barriers.

Address the distance between farmers and science

Participative research, development and extension (RD&E) aims to increase the relevance of research to farmers, to reduce the social and knowledge gaps between farmers and researchers, and increase the uptake of research findings (Millar and Curtis 1999; Pretty 1995, 1997; Thompson 1995).

Provide access to extension services

The use of groups has in part been a strategy developed as a response to the restrictions to access of one-to -one extension services brought about by the budget reductions seen over the last few decades (Marsh and Pannell 2000, Millar and Curtis 1999).

Involve women

Elix *et al.* (1998) present several examples of Australian best practice strategies to overcome barriers to women's participation in management in corporate business, the public service, government and the agricultural sector, although few of these reports analysed the effectiveness of the strategies being implemented.

Make information more accessible through the Internet

Groves (1999) states that use of the Internet could help overcome barriers to participation in education and training caused by remoteness, and time constraints.

Make research reports more accessible

The production of short research reports as recommended by Hannam and McGregor (1998) is being trailed by Rural Industries Research and Development Corporation to make their content more accessible, however there is no evidence as yet to judge their effectiveness. Indeed, this literature review found them to have many shortcomings as effective communication tools.

Use farmer knowledge

While there are numerous participative research and extension programs, Millar and Curtis (1999) note there are few that involve farmers with the aim of benefiting the research process and research outcomes, rather than seeing farmer involvement as an extension method for the farmers benefit. In pasture research they found that where there is interaction between farmers and researchers as co-operators, it plays an important role in increasing the understanding of pasture systems by farmers, scientists and advisors. There are also few that actively plan to encourage and elicit farmers' tacit knowledge (Millar and Curtis 1999).

Make science more understandable to farmers

DOOR (Doing Our Own Research) is a method for supporting farmers to do their own research in a rigorous scientific manner that creates links between farmers and researchers (Acres Australia 1997).

Help farmers deliver their own extension

Self managed specific interest learning groups enable farmers to cooperatively learn about specific topics which have too limited an audience to warrant delivery by normal extension mechanisms, and at a minimal cost (Virtual Consulting Group 1999b).

Make participation relevant to clients needs

Beer *et al.* (1996) outline a process for strategically aligning an organisation that involved all levels of management. The process was designed so that participation was directly relevant to the achievement of employee's business objectives, overcoming resistance to other similar processes that are not seen as relevant by middle and lower managers.

Promote agricultural science to rural youth

One subject reported that the 'Science Equity' project on Tasmania's northwest coast has seen a University staff member working with schools to develop demand for and interest in tertiary agricultural education. This has included curriculum development of materials with agricultural science flavour for science students in secondary colleges and a summer scholarship program to place high quality students with agricultural industry for periods of work experience. The program has now been expanded through a new program titled "Partnerships in Tasmanian Primary Industry Science". This project involves an alliance between the University, schools and agricultural industry to promote agriculture, develop professional development opportunities and encourage and build a culture of life-long learning amongst agricultural professionals.

Institutions promoting the benefits of training

The Rural Training Council of Australia has developed a web site; they have developed some case studies to help market programs. They also produce newsletters four times per year and have fortnightly updates to let people know what is happening. Consultation with clients allows the needs to be determined more accurately and training packages are developed from this.

Major changes in an industry create demand

Subjects reported that pressure from deregulation has helped create a demand from the processing tomato growers. The number of growers went down from 100 to 40 and the ones who were left were keen to learn. "I don't know of many people who demand change", was a comment from one consultant. "Change is generally thrust upon them where voluntary participation is needed".

Increase the emphasis on creating a demand for change

Some departments reported a traditional lack of focus on marketing and communication plans. Traditionally they focused their efforts on what clients wanted and how it would be delivered, rather than on whether change was needed. The strength was in the technical areas and weaknesses arose in helping people make strategic decisions. Participation could be increased if increased emphasis was placed on creating demand for change.

Target all members of the farm family

Property Management Planning has targeted farm families and encouraged them to participate. They have used images, photos and words to market to women and the younger generation. The program has also used relationship marketing (using local people to talk to local people) to promote trust in the program. In addition, staff show the benefits and the processes that are used in workshop sessions.

Target women

Quite a few sectors have targeted their marketing at women, as they have been keen to learn and be involved. They more specifically wanted to learn about the business side of the farming operations. Generally women have not been targeted in the past, however with women and families, the theme for marketing of some programs and projects, attendance and interest has been high. Dairy Research and Development Corporation has used women to help create a demand for change. This was done in the Women In Dairying Project where women created a demand for themselves and an increasing demand in the family.

Continually build awareness of new approaches

Demand is not great if no one knows that you have developed a new approach. Awareness must be built continually around new approaches. The TopCrop network is very good at creating a demand for change. The marketing approach focuses on growers who voraciously benchmark to achieve beneficial change.

Understand and address clients' needs

Private consultants interviewed as a part of this project said that they need to understand the needs, recognise the opportunities and design a product to meet these needs. The product produced is dependent on needs. They will also work with other co-operators and agencies to create demand. This is fostered by personal relationships

Education creates demand for education

"If you can create a person who is better educated and informed, they will change more readily".

Use existing networks

Dairy Business Focus (DBF) and Property Management Planning targeted the use of network marketing to create demand for the services. Local people were used to build relationships with potential clients. These local people were involved in coordination of the DBF project, which meant that potential participants were dealing with locals. A greater feeling of confidence was built through cooperation and community learning. Creative approaches came from people working cooperatively. The training sector within Horticultural Research and Development Corporation also utilizes networks to help market the courses. They work closely with existing networks and frameworks to market the courses, as they are not the only ones who can deliver these courses.

Understand the customer

The Kondinin Group constructed a high, positive corporate profile that systematically trained their customers and invested in understanding them. This provides success. It is important to understand the cost to market with the first 20% of customers being low cost and the bottom 20% of farmers are high cost. The cost of sales increases as you go down the scale of farmer.

Segment the market

In Victoria, the Department of Natural Resources and Environment (DNRE) has categorised participants and look at extension from a marketing point of view. They categorized farmers into three levels:

A. Interested participants – they will come along to anything
B. Active non-participants – they don't go to anything
C. Interested non-participants – they are the target group.

Group C needs 1:1 contact to encourage them to go to anything. They would not normally go without this encouragement. Strategies to get them to come along could include frequent flier points etc.

5 Conclusion

This report presents many innovative approaches to agricultural extension and change. This list is, however, incomplete. A broader and more detailed survey of agricultural extension in Australia, and of the international literature would illuminate more innovative practices. While this report may serve as a useful list of suggestions for those involved in agricultural extension, more evidence is required to determine whether or not the approaches are effective or efficient, and under what circumstances they would be so.

Appendix 2: Opportunities for research and development to foster the development of human capacity in Australian agriculture

Joint Research and Development Corporation Briefing Paper 3

By Amabel Fulton, David Fulton, Tim Tabart, Peter Ball, Scott Champion and Jane Weatherley, Tasmanian Institute of Agricultural Research

Executive summary

This briefing paper identifies potential opportunities for research and development (R&D) to support the creation of a lifelong learning culture within the Australian agricultural community. The paper was developed through a review of the literature (reported in briefing paper 1) and a broad consultation process with more than 60 potential investors, researchers, practitioners and customers.

The paper identifies research and development opportunities in four key areas, as outlined below, and described in more detail in the report.

1. Research and Development on institutional change and organisational structures supporting learning and change

1.1 A standard set of criteria for predicting, monitoring and evaluating the efficiency and effectiveness of agricultural development services
1.2 Describing Australia's agricultural development systems
1.3 Practical strategies for implementing change within organisations
1.4 Strategies for integrated provision of agricultural development services

2. Research and Development on the professional development of farm advisers including their structural arrangement and careers

2.1 Who are Australia's extension practitioners, what do they do and why?
2.2 Strategies for improving the effectiveness and efficiency of extension practitioners

3. Research and Development on the facilitation of enhanced learning processes on farm

3.1 Processes for enhancing human capacity
3.3 Working with groups – what works when and how to do it
3.2 Designing effective development programs

4. Research and Development on overcoming barriers to farmer participation in learning activities

4.1 A deeper understanding of factors affecting participation in learning/change
4.2 Understanding non-participation in learning/change
4.3 Tools for identifying and addressing drivers and barriers to participation in learning/change

The key principles underlying the Research and Development program proposed are:

- The need for effective, efficient, accountable research, extension and education services
- The need to create research products that are valued by customers
- The need to involve all members of the agricultural community in research, extension and education
- The interdependency of research, extension and education
- An interdisciplinary approach to extension research
- The need to ensure research findings are captured and integrated into daily practice, leading to enhanced human and economic development in agriculture
- The need for continuous improvement of research products
- Identifying, promoting and marketing research and research products that are relevant to industries, organisations and individuals outside of agriculture

The contents of this paper, and the three other briefing papers[6], were circulated for feedback, and discussed at a workshop in Melbourne at the end of August 2000.

[6] Briefing paper 1: Summary of relevant recent and current R&D on agricultural extension, learning and change. Appendix 1 - briefing paper 2: Existing and potential innovative approaches to creating demand for learning and change. Appendix 3 - briefing paper 4: Communication of developments in extension research and practice to Australian extension providers

Introduction

This briefing paper aims to identify potential opportunities for research and development (R&D) to support the creation of a lifelong learning culture within the Australian agricultural community. The paper was developed through a review of the literature (reported in briefing paper 1) and a broad consultation process with more than 60 potential investors, researchers, practitioners and customers. The contents of this paper and the other three briefing papers were discussed at a workshop in Melbourne at the end of August 2000.

The paper identifies these opportunities in four key areas, as identified by the steering committee of the Joint Research and Development Corporation project:

5. Institutional change and organisational structures supporting learning and change
6. The professional development of farm advisers including their structural arrangement and careers
7. The facilitation of enhanced learning/change processes on farm
8. Better understanding of the barriers to participation in learning opportunities

While the authors consider further examination of participative research and extension to be a priority for this research program, this has deliberately not been addressed in this report due to work on this topic being undertaken by the Land and Water Resources Research and Development Corporation (LWRRDC).

Within each of the four areas outlined above, three to four major research and development strategies have been described in terms of their relative strengths and weaknesses; the likely benefits to the customers and the funders; the target market and the advantages of the strategy over what is currently available. An appendix details the strategies that emerged from the literature review, and that were suggested by those interviewed or surveyed.

The research priorities described here reflect the combination of results from the literature review and the stakeholder consultation. The way in which they have been developed reflects some the key themes of the international and Australian literature on agricultural extension. In an effort to make these underlying themes explicit, four are described here: the purpose of extension; extension as one mechanism of agricultural development; the purpose of research; and the key elements of successful research.

This paper considers change and learning as processes in human and economic development[7]. The aim of extension, then, is to use these processes to contribute towards human and economic development in agriculture. Its success, then, is measured in human and economic outcomes, rather than by measuring change per se. The complex nature of agricultural systems means the customers for extension must be considered as all members of the agricultural community (such as farm men and women and their relations; employees, contractors; advisers; salespersons; agribusiness firms; government; researchers; and educators). The urban community also needs to be considered as part of the extension continuum, particularly in relation to rural production and land management where debates and conflicts need to be dealt with in a productive manner. In addition, extension is considered as one of three interdependent policy mechanisms for human and economic development in agriculture: research[8], extension and education[9]. The term "agricultural development" is used here to describe these three mechanisms.

[7] Economic development is used here as incorporating sustainability and environmental management
[8] Research is used here to include applied research and development, not basic research
[9] Education is used here to describe formal processes of institutional learning such as primary and secondary schooling, TAFE and University

For agricultural development services to enhance Australian agriculture's human and economic development, they need to be effective, efficient and accountable. Agricultural development services need to meet the needs of their funders and their customers, be delivered by the most appropriate service providers in a cost efficient manner, and use the latest techniques for ensuring the outcomes of human and economic development are achieved. This applies equally to research, extension and education.

Investment in research is considered as a key to enhancing human and economic development. That is, however, only provided that the findings of the research are captured and able to deliver benefits to society. The priorities identified in this paper place a strong emphasis on ensuring the findings of research are integrated into the daily practice of organisations and individuals. One of the key drivers for this is ensuring research addresses issues of importance to its customers. Once this is achieved, the research needs to be conducted to a high standard. In the case of research on agricultural development, this needs to draw from the international and Australian literature in a wide range of disciplines (such as psychology, organisational change, education, public health communication, marketing, sociology, environmental studies, geography, adult education, management, economics, political science etc.).

The research process does not stop with the publication of results. This paper emphasises the need to follow through the research to create tools and products that extension practitioners and their employers can use to increase the effectiveness and efficiency of what they do. Processes of participation[10], action research[11], interdisciplinarity[12] and continuous improvement[13] are seen as critical for converting research into practice. The research products should themselves be subject to continuous improvement. The recommendations also take a forward looking approach, focusing on what can be done to improve the future, rather than what was wrong with the past. The recommendations do, however, recognise the value of reflecting on the past to prepare for the future.

Finally, there is an emphasis on creating research products that meet a current or latent demand. The topic of research aimed at fostering the enhancement human capacity is relevant to all of Australia's industries, organisations and individuals. There is a huge opportunity for the investors in this type of research to not only play a major role in the advancement of Australian agriculture, but also in the advancement of the broader Australian economy and society.

Many of the themes outlined above appear regularly throughout this document. While not all readers will agree with the recommendations outlined in this paper, we hope that the ideas will stimulate discussion and debate on the topic of extension.

[10] Participation is used here to describe the process of involving all stakeholders in the research process
[11] Action research is used here to describe the process of research by 'doing'
[12] Interdisciplinarity is used here to mean a cooperative team approach by persons or organisations from a range of fields of expertise to achieve a shared outcome
[13] Continuous improvement is used here to mean the process of monitoring and modifying actions based on learning

1. Research and Development on institutional change and organisational structures supporting learning and change

1.1 A standard set of criteria for predicting, monitoring and evaluating the efficiency and effectiveness of agricultural development services

The strategy aims to develop a standard and flexible set of criteria to be used Australia wide for predicting[14], monitoring[15] and final evaluation[16] of the effectiveness and efficiency of existing and proposed agricultural development services[17]. The criteria would be developed through a review of relevant literature; a participative process for obtaining agreement on criteria by funders, practitioners[18] and customers; and by testing of proposed criteria on past and current programs[19]. Example criteria may be the level of stakeholder participation in program design; expected outcomes and performance indicators against these outcomes; level of accountability; and measures taken to optimise participation. The criteria would be simple to determine and meaningful. They would be supported by a set of guidelines for their determination, for their use, and for training organisations and individuals to use them.

The criteria could be used to assess activities[20], individual practitioners, organisations, or combinations of each of these. The information obtained from pre-project analysis could be used to predict who would benefit from the service, who should pay and who should deliver. The information obtained from monitoring projects could be used to redesign programs to make them more effective and efficient. Data obtained from final evaluation of projects could be used for accountability purposes. Programs evaluated using these criteria could be compared to provide evidence to providers and funders of the most effective and efficient mechanisms for service provision.

The target market for the strategy

The target market would be funders and providers of agricultural research, extension and education.

Advantages of the strategy over what is currently available

While there are systems available for evaluating the success of extension delivery, there are no standard procedures accepted or used by Australia's major extension funders and providers. In addition, these systems do not allow comparison between programs, providers or activities.

[14] Predicting is used here to mean the forecasting the possible consequences of particular action
[15] Monitoring is used here to mean the process of on-going assessment of a particular activity
[16] Evaluating is used here to mean assessment of a particular program or activity. It includes prediction and monitoring, and can also be considered as research.
[17] Agricultural development is used here to mean research, extension and education services for agriculture
[18] Unless otherwise specified, practitioners is used here to represent individuals providing research, extension or education services
[19] An agricultural development program is used here to mean a large grouping of a series of small projects
[20] Activities are used here to mean development processes such as lecturing, seminars, groups, field days, demonstrations

The relative strengths and weaknesses of the strategy

The development and application of the criteria would increase the level of evaluation of agricultural services and make deliverers more accountable for their outcomes. The criteria would allow a uniform system of assessment of the effectiveness and efficiency of agricultural development services throughout Australia. This would allow funders, organisations and individuals to better assess the value of their investment in service provision. The criteria would also allow cross-industry comparison of organisational structures; individual practitioner performance and of change activities. In addition, the process would provide an opportunity for continuous improvement of the organisations, individuals or activities being evaluated.

There is a risk that the use of the criteria could be cumbersome and difficult to implement, and that the funders and service deliverers may consider the introduction of evaluation tools into research, extension and education services as unnecessary. These concerns can be addressed in the design of the Research and Development program to focus it on achieving outcomes that are useful and relevant to its customers. Providers may also consider that such criteria may restrict or stifle innovation, but there is evidence that clear systems for evaluation of performance promote, rather than stifle, creativity.

The likely benefits to the customer if the strategy was implemented

Customers would benefit through improved effectiveness of agricultural development services; from the increased transparency of costs and benefits; and from the broader range of services offered due to increases in efficiency of service delivery.

The likely benefits to the funders of investment

Funders would gain a better return on investment in agricultural development programs due to the increased efficiency and effectiveness of service provision. Using the criteria in a predictive manner, funders would be able to make informed decisions about the nature and extent of agricultural development services they wish to fund. The criteria or system developed through the research could be marketed to other industries and sectors seeking improvements in efficiency and effectiveness of service delivery.

1.2 Describing Australia's agricultural development systems

The structure and function of the Australian agricultural development service provision system would be described, made publicly available, and updated annually or biannually. A system would be developed to describe who is doing what (in terms of providing agricultural development services) around Australia. Organisations described would include funders and providers of commercial, non-government and government research, extension and education services. The relationships and information flows between organisations would be described. The Australian system, and forces impacting on it, would be analysed and compared to those operating overseas, resulting in recommendations for improvement. The description would provide a basis for optimizing the functioning of the whole system, not just isolated parts. Over time, the information could also include efficiency and effectiveness reporting.

Cooperating institutions would provide much of the information in the initial phases, and over time the remainder could be gathered through an annual interview process. The information could be captured on a database, or web site, to allow funders, providers and customers to access the latest information on the availability and nature of agricultural development services in Australia.

Advantages of the strategy over what is currently available

The current agricultural development system in Australia is undergoing substantial restructuring. However, the current state of the system is not well understood. While there is some information on individual service providers and their functions, there is no coordinated documentation of agricultural development services in Australia. This would provide benefits to funders, providers and customers, and ultimately lead to improvements in the effectiveness and efficiency of agricultural services.

The relative strengths and weaknesses of the strategy

The strategy provides benefits to funders, providers and customers. Documentation of the current Australian extension provision system would highlight overlaps and deficiencies in provision of services, demonstrate the capabilities of the wide range of organisations involved in agricultural development services, create a broader understanding of the role of extension in agricultural development, and highlight opportunities for collaboration between service providers. The information would assist funders to identify opportunities for points of leverage for gaining the greatest returns from their investment in agricultural development services. It would support continuous improvement in the delivery of services to customers as providers have greater access to information regarding the services offered by others.

The strategy may be difficult to obtain funding for because funders and providers either believe they know how the system works already, or they do not believe that information on how other sectors operate would be relevant to their operation. The task is potentially very large and complex, therefore requiring a manageable level of detail of the description. There is a possibility that rapid change in the provision of agricultural development services may render the information out-of-date quite quickly, so regular updating must be maintained. The competitive environment for service provision and the politically sensitive nature of funding may prevent disclosure and collaboration. Some organisations may prefer that duplication is not exposed so as to ensure their continued survival. Finally, any improvements to the system that are made will be made voluntarily or through funder directives, as there is no onus on service providers to use the information to change or modify their services.

The likely benefits to customers if the strategy was implemented

Customers of the information will be able to find out who is providing what services, where and when. They can be confident of reduced duplication, fewer mixed messages and increased efficiency of service delivery. Service providers will benefit from the opportunity to see what innovation is occurring in Australian agricultural service provision, how they are positioned within the system, and how to contact other service providers and practitioners.

The likely benefit to funders of the investment

Funders will have better information on the full range of service providers and be able to identify opportunities for reduced duplication and increased collaboration. Funders will be working with a service sector that is more knowledgeable of complementary service providers, and thus better able to build multi-disciplinary problem solving teams. There will be increased promotion and accountability of funder and provider services, as those providing services will be acknowledged, while the claims of providers will be scrutinized and discrepancies highlighted.

1.3 Practical strategies for implementing change within organisations

The strategy aims to develop practical strategies for achieving

1. Organisational alignment – aligning the structure, control and incentive systems, corporate culture and management style with the organisation's espoused vision; and
2. Creative work environments within agricultural development organisations.

While there is a considerable body of knowledge pointing out the desirability of such goals, there are few organisations in any field that achieve them, and there is little knowledge of how to bring them about. This strategy would review existing knowledge, develop strategies for achieving these goals, and evaluate these methods in a series of case study applications. The system developed then be made available, supplemented by training material, to organisations providing agricultural development services.

Target market for the strategy

The target markets are organisations providing agricultural development services, plus farm businesses and agribusinesses.

Advantages of the strategy over what is currently available

The rapidly changing nature of agriculture and agricultural service provision means that continuous adaptation will be important and that strategic and organisational change will be increasingly interdependent. Therefore, overcoming the current lack of understanding of how organisational change is to be implemented is critical to the future. To date there have been many recommendations about what changes need to occur to improve organisational effectiveness and efficiency, but very little implementation. This strategy would provide mechanisms for organisations to implement these recommendations.

The relative strengths and weaknesses of the strategy

The strategy would improve the standard of delivery of agricultural development services. It would provide a means for frustrated funders, employees and customers to have organisations recognize and address their needs. This would reduce wastage of both financial and human resources, and lead to organisations that are responsive to change. Service organisations would be better able to undertake continuous innovation and development, and better able respond to the changing environment.

Additional spin-offs would be improvements in the working conditions of practitioners, increased human capacity amongst practitioners. Practitioners and organisations advocating change within agriculture would also be 'walking the talk', having personally experienced change themselves. If this strategy was successful, the product would be in strong demand across many industries and organisations, and the funders and deliverers of the research would be widely recognized for their efforts.

The main threat to the strategy is a lack of awareness that the internal operation of agricultural service organisations is relevant to learning and change within agriculture. There may also be a lack of confidence by organisations that the recommendations for organisational improvement can be successfully implemented. There may also be a lack of willingness by organisations to having themselves exposed to this type of research. These weaknesses could be overcome through a participative research process where opportunities for improvement in service delivery could be identified in collaboration with organisations and practitioners.

The likely benefits to customers if the strategy was implemented

The ultimate customers of this research, the agricultural community[21], service practitioners and organisations, would benefit from improvements in the efficiency, effectiveness and accountability of service delivery by agricultural development organisations. Customers would be able to choose from a group of excellent, inspirational and experienced practitioners and organisations and be confident that the services would meet the customer's needs.

The likely benefits to funders if the strategy was implemented

Funders would benefit from improved return on their investment in agricultural development services. The system would have increased professionalism, with satisfied customers and satisfied practitioners. Funders would have increased confidence that service providers would be able to respond to the funders' needs. The system developed for achieving organisational change would be a product that could be marketed to other organisations and industries.

1.4 Strategies for integrated provision of agricultural development services

The aim of this research would be to identify and implement opportunities for integrated provision of services by appropriate combinations of organisations and individuals. This would draw on the research on organisational and practitioner cooperation, interdisciplinarity and teamwork both within and outside agriculture. Project design tools would be developed for service organisations and practitioners to consider what roles other service providers could play in achieving the desired outcomes. The tools would also provide guidance on how cooperation between organisations and individuals could be achieved, maintained and evaluated. The design tools would be supported by a guidebook and a training package. Ideally, the project design tools would also be used as a policy tool to link the activity of the practitioner or organisation to its goals.

Target market for the strategy

The target markets would be trainers of practitioners, practitioners themselves, policy makers, organisations, and funders of agricultural development.

Advantages over what is currently available

There is little documented or anecdotal evidence of integrated agricultural development programs. This strategy would lead to improvements in linkages between research, extension and education; between research/extension and TAFE; between research/extension and Universities; between private and public research/extension; and between agribusiness research/extension and other research/extension). Within extension there are few design tools available, particularly those that assist with the development of integrated approaches to service delivery. Few funders require service providers to demonstrate use of appropriate design tools or that integrated approaches have been considered, and few service providers presently have the skills to initiate, maintain and evaluate integrated service delivery.

[21] The agricultural community includes those involved in agriculture: farm family members (women, older generation and younger generation), farm employees, agricultural contractors and agribusiness employees etc.

The relative strengths and weaknesses of the strategy

Integrated provision of agricultural development services would lead to increased efficiency and effectiveness of extension, with benefits to the agricultural community, organisations and funders. The development of a project design tool is a simple mechanism for capturing past research and creating an integrated approach to service provision. This provides the opportunities for all players in an industry to be involved in the collaborative delivery of agricultural development services, leading to increased synergy through shared knowledge and understanding, visions and practices. While the design tool would have the greatest impact if adopted by organisations, it could still achieve significant change if practitioners, independent of their organisations, adopted it. It would provide a mechanism for continuous improvement within service organisations, and within industries, shifting the emphasis from activities and outputs to outcomes.

The weaknesses of the strategy are the need for it to address the current barriers to integrated service provision. These barriers exist at practitioner, organisational and funder levels, and may act to dampen demand for the research product. The success of the strategy is dependent on commitment from organisations to use the product.

The likely benefits to customers if the strategy was implemented

The agricultural community would benefit from the increased efficiency of agricultural service provision. They would be more confident of appropriate products and services being provided by the respective providers. Services would be available from a range of providers, at a range of levels of complexity. The agricultural community could benefit from the increased knowledge sharing and consistency of messages between organisations. A more integrated service provision would allow the agricultural community to enjoy more meaningful interactions with informed service providers.

The likely benefits to funders if the strategy was implemented

Increased efficiency and effectiveness of agricultural development services would provide major benefits to funders through decreased costs and increased impact. The integrated approach to service provision would result in co-learning and in greater and longer-term ownership of the changes by the agricultural community. The increased involvement of a wide number of stakeholders would lead to increased awareness of the role of the funder. The system developed for achieving integrated service provision would be a product that could be marketed to other organisations and industries. The strategy itself, if broader than agriculture in its application, could attract a number of others funders to invest.

2. Research and Development on the professional development of farm advisers including their structural arrangement and careers

2.1 Who are Australia's extension practitioners, what do they do and why?

This strategy aims to develop recommendations for improving the human capacity of service providers in agricultural development. The qualifications, roles, practices, structural arrangements, earnings, professional development, access to resources, information being delivered, methods of delivery, relationships with others, attitudes and perspectives of extension practitioners will be described in relation to emerging trends in agricultural service provision.

Factors affecting the efficiency and effectiveness of extension practitioners will be identified. The extension practitioner characteristics will be compared with those expected by the agricultural community, industry, funders and employers, and also with the characteristics of extension practitioners in other countries and in other similar professions in Australia. Such data gathering could be done using external consultants, or internally, by the extension providers and practitioners themselves. Opportunities for improving the capacity of extension practitioners to support learning will be identified.

Target market for the strategy

The target markets would be educators and trainers of extension practitioners, funders and agricultural development organisations.

Advantages over what is currently available

There is currently a lack of knowledge of the characteristics and circumstances of extension practitioners. While there is some anecdotal evidence of high rates of turnover and low levels of satisfaction amongst extension practitioners, there is no documentation of this in the literature. Such a study would result in a concerted effort being placed on the professional development of extension practitioners.

The relative strengths and weaknesses of the strategy

Extension practitioners are a key component of effective agricultural development. The strategy will provide the agricultural industries of Australia with an opportunity to agree on competencies for extension practitioners and to develop strategic approaches to the professional development of extension practitioners. It will also provide a basis for revising job descriptions, the status of service providers, professional development and organisational structures.

A weakness of this strategy may be the resistance amongst employers and others to increasing the status and capacity of extension practitioners. This could be addressed by demonstrating the benefits of improved service delivery to employers and employees.

The likely benefits to customers if the strategy was implemented

The agricultural community would benefit from being able to draw on better skilled advisers to facilitate their own personal and agricultural development. Ultimately this would lead to better outcomes for the agricultural sector.

The likely benefits to funders if the strategy was implemented

Through a knowledge of extension practitioners' characteristics and circumstances, funders will have the opportunity to better meet the needs of extension practitioners. A more secure, innovative and enthusiastic workforce will create benefits in terms of efficiency and effectiveness of service delivery.

2.2 Strategies for improving the effectiveness and efficiency of extension practitioners

This strategy aims to develop mechanisms for improving the effectiveness and efficiency of extension practitioners by addressing their professional development needs, and those of their employing organisations. Examples of possible strategies include development of training needs audits for extension practitioners; national provision of professional development for service providers; development of local discussion groups for extension practitioners; sponsoring of conferences and workshops across industries; enhancement of professional networks; modification of undergraduate education; support for extension publications, resources and libraries; support for post-graduate research training; and national rewards or programs for leading professionals.

Strategies would be developed in response to a review of the literature on extension practitioner characteristics, on professional development programs of other professions, and of factors influencing the effectiveness and efficiency of extension practitioners. The strategies would then be developed and tested in a series of action research projects.

Target market for the strategy

The target markets would be educators and trainers of extension practitioners, extension practitioners, funders and agricultural development organisations.

Advantages over what is currently available

There is currently a lack of knowledge of the professional development of extension practitioners, but the anecdotal evidence suggests there is ample room for enhancing the human capacity of this group of people critical to agricultural development. Strategies would improve extension practitioners' access to extension education, training, networks, research and opportunities for innovation. This would lead to improvements in the delivery of services to agricultural industries.

The relative strengths and weaknesses of the strategy

The development of increased human capacity amongst extension practitioners will lead to increased effectiveness and efficiency of service providers. It is likely this can be achieved by leveraging existing efforts, rather than by creating new services or support structures. The weakness of the strategy may be that it is not as appealing to funders and extension practitioner employees due to a perception that the problems of agricultural development lie with the farming community, rather than all members of the agricultural community. This could be overcome by demonstrating the positive impacts of improving agricultural development services.

The likely benefits to customers if the strategy was implemented

The agricultural community would benefit from being able to draw on better skilled advisers to facilitate their own personal and agricultural development. Ultimately this would lead to better outcomes for the agricultural sector.

The likely benefits to funders if the strategy was implemented

Better trained and developed extension practitioners will be better able to respond to funders' needs. A more secure, innovative and enthusiastic workforce will create benefits in terms of efficiency and effectiveness of service delivery. Many of the strategies developed could be packaged into products and marketed to other professions.

3. Research and Development on the facilitation of enhanced learning processes on farm

3.1 Processes for enhancing human capacity

This strategy aims to examine the effectiveness of a range of processes for enhancing human capacity. It would include processes for learning, for creating a culture for learning, and for learning how to learn. These would include traditional extension processes such as facilitated groups, field days and demonstrations; and emerging processes such as the delivery of learning using information technology.

The research would involve evaluating a range of innovative[22] and effective processes for enhancing human capacity being used internationally and in Australia. Combinations of processes would be examined, not just activities on their own. The research would also examine factors affecting the effectiveness and efficiency of these processes for all members of the agricultural community, such as characteristics of the individuals and the context within which they are operating. The research would describe the range of processes available to service providers, and their relative advantages and disadvantages in a range of situations. A training package would be developed to assist practitioners in using this information.

Target market for the strategy

The target audience would be service deliverers, practitioners, and funders.

Advantages over what is currently available

There is considerable information on relative merits of processes but not detailed information on the extent to which they are appropriate in particular circumstances, nor how to decide this. Many international and Australian innovations in service delivery are not being documented, let alone evaluated. This project would allow these new approaches to be exposed to the broader community, leading to increased awareness and uptake of new ideas within the service sector.

The relative strengths and weaknesses of the strategy

This research would provide information on the effectiveness of particular extension strategies and the conditions under which they are effective. Effectiveness would be considered from the perspective of human capacity development, providing information about learning for all sectors of the agricultural community. There is an opportunity to build the research process into existing or forthcoming extension programs, and thereby leverage the investment in research.

However, there has already been a lot of research in this area and to move the research program forward, it will need to bring together a range of disciplines. In addition, users of innovative approaches may not wish to share their ideas with others, and service providers may be reluctant to have their work scrutinized publicly.

[22] Innovative is used here to mean new to extension practice in Australia

The likely benefits to customers if the strategy was implemented

Customers would benefit from improved service delivery as a result of the effective and efficient execution of a wider range of processes for agricultural development. Customers would also be dealing with motivated service providers who are working in an innovative environment, focusing on continuous improvement for themselves and the people around them.

The likely benefits to funders if the strategy was implemented

This strategy would allow funders to capitalise on the creativity in Australian extension. It would lead to improved effectiveness and efficiency of extension; and increased satisfaction of customers and service providers. Funders would have increased knowledge of the range of processes available and their relative merit such that they were better able to assess applications for funding. The final research product could be sold to other industries or organisations.

3.2 Working with groups – what works when and how to do it

This strategy aims to improve the effectiveness of group extension delivery for research, extension and education, recognizing that groups are very popular and an effective tool for delivery of a range of services. The research would result in detailed guidelines for group formation, maintenance, running, independence, evaluation and finalisation. These would incorporate all the latest research on working with groups, particularly in agricultural contexts, addressing all types of group processes from semi-formal training sessions to facilitated board meetings, and focusing on the range of approaches that can be used in group work. The experiences of Australian and overseas extension providers would be used to inform the work.

The research will provide guidelines to assist practitioners in identifying the characteristics and needs of group members. Topics covered will include deciding whether or not to use a group; methods for group formation, factors affecting group success; evaluating group performance; which group processes to use when; how to resolve conflicts and problems with groups; appropriate complementary techniques for leveraging group efforts (such as one on one follow up, media, internet); and approaches for achieving group independence. The findings would be published in a convenient form such as a guidebook, accompanied by a training package to assist practitioners in the guidebook's use. The strategies outlined in the book would be evaluated through a series of case studies throughout Australia.

Target market for the strategy

The target markets would be agricultural development service providers, both organisations and practitioners.

Advantages over what is currently available

While there is much information on running groups in Australian extension, this is often based on experiences in a specific industry, dealing with specific issues (such as natural resource management). This strategy would bring together knowledge of experiences from a wide range of approaches and contexts, and provide professionals with a bag of tools for the effective running of groups. It would capitalize on the existing group extension effort, and ensure groups were used appropriately, rather than for group's sake

The relative strengths and weaknesses of the strategy

This strategy will formalise all the information on group extension in one, pulling together a range of approaches. This information will be based on evidence and experience, and seek to assist service delivers in research, extension and education to address environmental, productivity and management issues using group work. The recommendations will be simple for individual practitioners to implement, and could be adopted as policy by organisations.

Its weakness is the lack of popularity of planning tools amongst extension professionals and many organisations. In addition, there is a great deal of existing information on working with groups, and this strategy would need to ensure it took this information a step further. It may also be difficult to incorporate all the relevant information in one guidebook while trying to address the needs of all the different providers and customers. The research must be packaged in a way that is attractive for extension practitioners to use.

The likely benefits to customers if the strategy was implemented

Customers would benefit from improved delivery of group extension activities. Group activities would be rewarding, leading to increased interest in participation. Group skills would also be developed in customers, which could then be used in other activities, increasing their self-dependence.

The likely benefits to funders if the strategy was implemented

For funders, a higher standard of group work in Australian extension would increase effectiveness and efficiency of service delivery. It would support the professional development of extension practitioners and result in satisfied customers. The research product could be sold to other industries and organisations.

Designing effective development programs

The strategy aims develop a tool for assisting those involved in research, extension, education, and information service delivery to design effective learning processes on farm. The tool would be used by practitioners, but could also be adopted as a policy tool for organisations. It would take designers step by step through what they need to consider in developing a change program.

The strategy would build on the latest research on designing development programs, drawing on a wide range of disciplines and industries, and on current practices in agricultural extension. The research would use the frameworks and tools developed in other strategies, such as the criteria for effective and efficient extension; strategies for integrated service provision; strategies for optimizing participation; and strategies for enhancing the capacity of extension practitioners to support learning.

The tools developed from this research would be documented in a simple guidebook, backed up by more detailed explanations with references to the latest research on the topic. The product would be evaluated in a series of action research case studies. A training package would be provided to assist practitioners in implementation, and to integrate it into educational and professional development activities. Practitioner and researcher feedback on the model would be used to allow its continuous improvement. The final product could be developed for sale to other industries or sectors.

Target market for the strategy

Practitioners, organisations of agricultural development services

Advantages over what is currently available

There are some project design tools available but most of these require significant adaptation to individual circumstances. The tools do not address the needs of the wide range of providers (research, extension and education) and they do not direct the project designer to the latest relevant research on service delivery. Practitioners need to be able to select from the range of approaches available to allow them to meet their program's goals in an achievable manner.

The relative strengths and weaknesses of the strategy

The strategy would provide benefits to practitioners, organisations and funders of agricultural services. It would be a practical simple tool for improving the efficiency and effectiveness of agricultural development, incorporating many of the latest approaches to service delivery. The product will be designed so that it can be continually developed and refined, building on the experience of those involved in its use. The strategy will help organisations and individuals align their service delivery with their desired outcomes. The tools would address the needs of a wide range of service deliverers.

One of the weaknesses of the strategy is that organisations may have their own processes for planning and be disinterested in considering another. The process of developing the tool could get bogged down, so it would need to start at the simplest level and continually develop and expand. The success of the strategy would be dependent on its adoption by organisations. This could be addressed by using a participative approach to its development

The likely benefits to customers if the strategy was implemented

Customers would benefit from programs designed to meet their needs. These programs would be delivered efficiently and effectively and public evaluation of them would allow customers to compare different programs. The use of the tools would be part of the process of the continuous professional development of extension practitioners.

The likely benefits to funders if the strategy was implemented

Funders could be confident that programs for the delivery of agricultural development were well designed, incorporating recommendations from past research. Overall there would be an increase in the efficiency and effectiveness of extension.

4. Research and Development on overcoming barriers to farmer participation in learning opportunities

4.1 A deeper understanding of factors affecting participation in learning/change

The strategy aims to fully explore the factors affecting participation in learning/change. It would build on the existing international and Australian research on drivers and barriers to participation in learning in agriculture and other industries. It would also examine the research and practice relating to approaches to enhancing and/or overcoming these. The strategy would examine participation in all forms of learning opportunities: self-directed or personal (such as reading, surfing the net and using an adviser); higher education (TAFE and University); and extension education (workshops, conferences, seminars, field days etc). The process of 'participating' would be observed and explored in detail to assist in the identification of factors affecting participation in all forms of learning opportunities. Recommendations would be presented to assist service providers in understanding the participation process, and in identifying what strategies can be used to encourage enhanced participation by the customer group.

Target market for the strategy

The target market for the strategy would be organisations and individuals providing agricultural education, extension and research services.

Advantages over what is currently available

The current literature on barriers to participation in learning in agriculture is limited in its depth. The relative importance of drivers and barriers has not been well documented. This research would seek to overcome these limitations.

The relative strengths and weaknesses of the strategy

The strategy would identify the root cause of factors affecting participation in learning or change. Project designers could then address the causes, rather than the symptoms, of non-participation. An understanding of the relative importance of different factors affecting participation then allows resources to be focused on points of highest leverage.

A weakness of the strategy may be that funders and practitioners consider they already have a good understanding of the factors affecting participation in learning, and thus not consider this strategy a worthy investment. The extent to which barriers are addressed by service deliverers could be evaluated as the first part of the project. Another weakness may be that participation in learning or change is already occurring to a high level in Australian agriculture, and in these circumstances increased participation may be difficult to achieve. The strategy will help to elucidate whether or not this is the case.

The likely benefits to customers if the strategy was implemented

Customers would benefit through more relevant, accessible learning programs, and ultimately, increased participation in learning opportunities. Practitioners and organisations would benefit from increased participation in activities and programs. This would lead to enhanced confidence and competency amongst service providers. Overall there would be an improved culture for enhancing lifelong learning.

The likely benefits to funders if the strategy was implemented

Funders would benefit through increases in the efficiency and effectiveness of their investment in agricultural development resulting from optimal participation in learning. This would lead to faster uptake of appropriate technologies and approaches by customers. The information generated from this program would be of relevance to a wide range of industries.

4.2 Understanding non-participation in learning/change

The strategy aims to develop recommendations for facilitating change amongst non-participants in formal processes of learning or change. The research would seek to identify the characteristics of non-participants and factors affecting participation in learning, such as their needs; their education history; current involvement in learning/change; attitudes; family and cultural circumstances; and opportunity for participation in learning. The impacts of non-participation on the individuals and their businesses could be examined. Working with these people, researchers would seek to identify mechanisms by which their learning could be enhanced.

Target market for the strategy

The target market for the strategy would be organisations and individuals providing agricultural education, extension, information and research services.

Advantages over what is currently available

The current literature on participation in learning in agriculture focuses on participants, rather than non-participants. While there is much discussion about non-participants, there is little information on who they are, or why they are not (apparently) participating. This research would seek to overcome these limitations.

The relative strengths and weaknesses of the strategy

The strength of the strategy is that it would provide a means by which agricultural development efforts could be directed to a broader audience, rather than just those currently participating in learning. It would provide information on what levels of participation should be expected, and the reasons for this. The strategy would also help in the identification of appropriate mechanisms for enhancing learning/change across the whole spectrum of the agricultural community.

A weakness of the strategy may be that the reasons for non-participation are extremely complex and therefore difficult or expensive to address. This may lead to alienation amongst funders, customers and practitioners if their expectations for immediate improvements in participation in learning/change have been raised. Nevertheless, is may also indicate the level of return on investment that can be expected from working with non-participants.

The likely benefits to customers if the strategy was implemented

Customers would benefit from increased opportunities for learning, and from the better understanding of their needs by funders and service providers. Non-participants would feel less alone; less excluded from the learning loop(s) and be more aware of the impacts of not participating in learning.

The likely benefits to funders if the strategy was implemented

Optimal participation in learning would lead to increases in the efficiency and effectiveness of the investment of funders in agricultural development. This would lead to faster uptake of appropriate technologies and approaches by customers. The information generated from this program would be of relevance to a wide range of industries.

4.3 Tools for identifying and addressing drivers and barriers to participation in learning/change

The strategy aims to develop tools to assist organisations and practitioners to identify the drivers and barriers operating for their particular customer group. This target group may be operating at a local, industry, state or national level. A range of options for enhancing participation in learning could be detailed with respect to their appropriateness for addressing particular participation issues.

The organisation or practitioner would choose the appropriate options and then be guided through the process of design, implementation and evaluation of those options. The tools would be designed to optimise all forms of learning opportunities: self-directed or personal (such as reading, surfing the net and using an adviser); higher education (TAFE and University); and extension education (workshops, conferences, seminars, field days etc). Action research would be used to evaluate the effectiveness of the tools in a range of circumstances.

The strategy would build on research on drivers and barriers to participation in learning; and on the research and current practice for enhancing and/or overcoming these. Data on the effectiveness and efficiency of the tools could be collected and centrally analysed or reported to allow continuous improvement of the toolkit.

Target market for the strategy

Service providers (organisations and practitioners), any organisation or individual with a specific group they wish to involve in learning.

Advantages over what is currently available

Anecdotal evidence suggests that currently it is difficult for project designers to systematically identify barriers to participation and to then select appropriate mechanisms for increasing participation in learning opportunities. There is little data on what levels of participation should be expected, and under what circumstances these should be expected. Currently there is no central source of information on barriers to participation.

The relative strengths and weaknesses of the strategy

The strategy has strengths in its practical nature for assisting in optimizing participation. It allows practitioners to use the outcomes of extension Research and Development in their everyday work. The strategy considers barriers to all types of learning, not just externally provided learning. By allowing comparative analysis of data collected by users of the toolkit, the strategy will assist in gathering more information on participation, leading to continuous improvement of the toolkit. In itself, the toolkit will be a stimulant to encourage people to address barriers, leading to increasing participation.

One of the weaknesses of the strategy may be the lack of a market for the toolkit, either because service providers are already using effective tools, or because they do not perceive a need for such tools. In addition, there may not be sufficient information currently available on barriers to participation in learning for the strategy to be able to produce an effective tool kit. Linking this strategy with strategy 4.1 and 4.2 - aimed at understanding factors affecting participation and non-participation - would address these weaknesses.

The likely benefits to customers if the strategy was implemented

Customers would benefit through more relevant, accessible, meaningful programs, and ultimately, enhanced learning. Practitioners and organisations would benefit from increased participation in activities and programs. This would lead to enhanced confidence and competency amongst service providers. Overall there would be an enhanced culture for lifelong learning.

The likely benefits to funders if the strategy was implemented

Funders would benefit through increases in the efficiency and effectiveness of their investment in agricultural development resulting from optimal participation in learning. They would be in a position to obtain both data on participation in programs, and feedback regarding client needs. The product generated from this program could be marketed to a wide range of industries and organisations.

Research and development opportunities identified

1. Research and Development on institutional and organisational structures supporting learning and change

Ideas from the literature review

- How do Research and Development activities align with the objectives of Research and Development organisations?
- What are some practical methods for achieving strategic alignment?
- What are the benefits of integrating service provision?
- Investigate what/who drives change in current organisations in provision of extension education - what does the institution do to achieve these changes?
- Implementation of best practice extension
- How to develop new models for extension to operate better both within and between organisations
- Evaluation of how well the current system is working - identify gaps in provision
- Evaluation of the benefits or otherwise recent changes in extension (ask clients)
- Ask who does Research, Development and Extension currently serve?
- What have been the changes in the amount of provisioning as a result of recent provisioning change?
- Develop a standard system for evaluating the effectiveness and efficiency of extension Australia wide
- Develop action research mechanisms for communicating between parties within the agricultural system
- How do we use the concepts of effectiveness, efficiency and accountability in extension policy, program evaluation and practitioner evaluation?
- Evaluate current intra-organisational operations
- How to integrate this learning into extension education and extension training
- Bring people from other disciplines to contribute to our understanding of organisational change
- What do private providers actually provide? To whom?

Ideas from interviews and surveys

- We need research into institutional structures and pressure points, i.e., the education structure and how to change it.
- We need to build continuity between research in universities, applied work by practitioners and the user groups (the farmers).
- Specific research and development on achieving change and innovation at three levels - 1. Systems, 2. Processes and 3. Practices. Currently most of the research is done on what people do (their practices). The research is not focused on looking for greater leverage. This could focus on the whole system and processes. (**Processes** - is a sequence of steps / techniques and tools that are designed to achieve an outcome. **System** - is a whole connection and interrelationship between different elements).
- Research should not be done only on extension, but the whole learning system, our education system and whether this system assists people and enhances their learning skills).
- We need to focus on a monitoring and evaluation system to improve what we are doing.
- Current attitude and paradigms by all participants especially funders and managers of Research and Development.
- Research on demographics, lifestyles, geographic distribution, age groups, women's involvement and corporate agriculture is needed.

- How do we improve the linkages between the public and private sectors?
- Effective ways for community representation to have an impact on policy development and program planning and implementation.
- Innovative ways to evaluate the extension components of particular projects and programs in their relationship of the financial, social and environmental outcomes.
- Development of industry specific models that integrate research and extension from the inception of research projects.
- Monitoring and measuring ultimate impact of our extension programs – how to measure and over what timeframe
- Monitoring and evaluation –there is a lack of resources and a lack of expertise to properly evaluate or projects.
- Agency structures and systems – documentation of the success or otherwise of various state agency experiments with structure and approach
- Measuring the size of the transaction costs in current and alternative extension systems
- How can the widespread adoption of public good services be achieved in an increasingly commercialised extension environment?
- What is the relative effectiveness and efficiency of private versus public sector extension services?
- Farmer involvement in technology generation and research
- Making the service more accountable
- What is the actual relevancy and impact of the service?
- How the extension organisation learns and responds in reaction to its changing environment
- Appropriate evaluation of existing programs
- Determining the community spin-off when working with individuals to improve farm profitability
- Influence of extension staff work on social fabric and organisational culture
- What is the purpose of extension?

2. Research and Development on the professional development of farm advisers

Ideas from the literature review

- What professional development do farm advisers want?
- What are advisers expected to do?
- What training and professional development is available to advisers?
- What training and competencies do advisers currently have?
- What competencies should they have?
- What roles do advisers perform?
- Who are the advisers?
- How are advisers employed?
- How are advisers' skills recognised?
- What is the depth of advisers' resources?
- Developing trust with clients
- What information is delivered and how?
- What are the client perceptions of providers (so they trust farm advisers)?
- What are the best delivery methods for the professional development of farm advisers?
- Develop tools to help identify professional development needs and address them
- Ways of evaluating farm adviser performance (effectiveness, efficiency, accountability)
- How does research link to extension?
- Skills audit on farm adviser's
- How do farm advisers evaluate the value of their information?

Ideas from the interviews and surveys

- Training of extension staff and their development.
- We need to look into the opportunities of training farmers as facilitators.
- What is the level of skills in selling of the Australian extension officer?
- We need research into our professional identity.
- Looking at the assumption that if you provide better information, you will achieve change. This assumption is strongly held by Research and Developers.
- How do we effectively train people and provide them with linkages between programs as well as providing them with a career path?
- What do we do to prepare graduates to participate in an extension environment with farmers who are generally older and cynical?
- We need research into a better course design for universities
- New ways of getting information out to growers.
- We need to research alternative approaches to extensions.
- How do we, as Research, Development and Extension professionals learn from each other (more collaboration and less competition)?
- Innovative ways to support and enhance the skills of extension practitioners
- Ways that extension practitioners learn and how they impart knowledge and support to farmers.
- The impact of people with little background in technical issues attempting to provide the information. Under the purchaser provider model, the traditional departmental extension officer is being replaced by TAFE's in some areas.
- Identification of how extension is being carried out at the moment - what tools are being used, what are the characteristics shown be extension officers. How can these be effectively used to develop more effective extension programs; what planning and evaluation processes are being implemented, identification of the strengths and weaknesses of this process and recommendations of how to improve the status quo.
- External and internal appraisal of major weaknesses and strengths of extension staff and their projects, using a mixture of approaches including self-appraisal, personality profiles and appraisal by colleagues in other streams
- Influence of extension staff work on social fabric and organisational culture
- The researcher and extension providers interaction with the clients

3. Research and Development on the facilitation of enhanced learning processes on farm

Ideas from the literature review

- What training is needed for course deliverers to enhance learning eg, managing learning skills?
- Ask farmers how effective programs have been?
- Barriers to effective evaluation
- How can evaluation be used to improve delivery?
- Develop a framework for evaluation of what worked and what didn't and have an agreed set of benchmarks so there can be a comparison across circumstances
- Are growers needs being addressed by extension?
- How can farmers be assisted with identifying their own needs?
- Motivation and attitudinal factors which affect learning processes
- What processes are needed for environmental vs. productivity learning?
- How can you bring about change?
- What environmental factors promote learning and how can you combine these eg. aspects of field days?
- How to design an effective change program - what processes and with whom
- How to run groups - what to use and when
- What do non-participants have to say?
- Why make the transition from non-learning life to learning life?
- Are we providing a service to the right people?
- What is the potential for service delivery by agribusiness as a toll for change?
- What is the role of information technology in farmer learning?
- What is the effectiveness and appropriateness for groups?
- What do extension designers and providers know about facilitating change?
- Develop tools to help providers use extension research findings

Ideas from the interviews and surveys

- How to increase the rates of adoption, manage change and the key factors that makes change happen?
- How do we incorporate new techniques and encourage farmer participation?
- We need to look at the way that people learn in a group setting.
- We need to identify what works for whom and in what circumstances. Then we could build on that. This means that we may move away from one dominant approach per program. We should not throw away the old to only focus on the new, but rather we should build on both.
- We need to identify the keys to communicating value chain information. What are the "prods" that switch people on?
- What are the rates of adoption of messages and ideas and how do you attribute change to programs?
- We need research into new ways of operating – different change processes and extension.
- What is the correlation between training and profitability?
- How effective are leadership programs and international study tours?
- How do we achieve change and innovation efficiently and effectively?
- What is the current impact of extension? We should look at the higher order changes over a period of time.
- We need to look at the effect of intervening in people's lives and giving them better decision-making skills. Is this a good thing or not? We could have a control group who had no intervention except market forces. The research could look at the impact of our intervention.

- We could do an analysis of the cost to people adjusting out of agriculture without the assistance of a counsellor.
- We need to look at the capacity of the community to change. Can we fundamentally change with normal extension activities, or do we revert to the "old practices" after the training, or after we are put under a bit of pressure?
- We need to find better means of evaluating what we have done and meeting our accountability requirements.
- We need to look at how people learn and what motivates farmers to learn.
- We need to identify the approaches to enhancing the relationships between natural resources issues and Research and Development Corporations.
- Development of industry specific models that integrate research and extension from the inception of research projects.
- The role/value of regulation as part of the extension component of a program/project to change on-farm knowledge and behaviour.
- Approaches to on-farm learning that takes into consideration off farm (or remote) impacts of farm practices (eg. nutrient management in catchments, tree clearing vs. downstream salinity, etc.)
- Roles for using modern communication technology to inform and support farmers in learning and decision-making.
- Appropriate ways for groups to work together to implement on-farm practices that deal with issues (erosion, weeds, pest animals, salinity, etc.) that require neighbour coordination and action to achieve effective outcomes.
- Identification and testing which of the newer approaches to data collection and analysis, and to program evaluation, can be applied effectively to extension
- Research on how best to support farmers and farmer groups in their efforts to keep up with change and learning
- Study of farmer training schemes (Recognition of Prior Learning and others now been funded). How can we make these better before they spoil the market?
- The extension methods most likely to lead to farmer awareness and adoption of change in today's farming environment
- Monitoring of success and failures
- Description of the theoretical models that describe 'best practice' extension in various situations, and documentation/evaluation of extension activities where these principles have been followed
- We need a review of extension policies to explore potential solutions to problems arising directly from the increased commercial imperative affecting agricultural extension.
- Combination of adult learning/change management/sociology disciplines to address sustainability issues
- A lot more pilot testing of approaches which involve a wider selection of rural and regional communities
- Look more at customer driven extension models rather than the classic extension theory models
- Evaluation of programs and activities to identify good practice
- Farmer involvement in technology generation and research
- Look more at a multi-way flow model with links between funders, researcher, extension specialist and producer
- Methods, tools, skills, leadership and competence for achieving change
- How farmers learn and want to learn
- How farmers in specific animal industries and regions learn and what constrains them from adopting new technology and techniques
- Research on the range of landholders objectives for land management
- Research on the range of landholders' socio-economic circumstances
- The effect of public land/environmental management policies on different types of landholders
- Means of targeting of extension programs to specific groups of landholders
- Individual landholders decision-making processes and information gathering behaviour
- Reasons for non-adoption of critical technologies in major industries

4. Research and Development on overcoming barriers to farmer participation in learning activities

Ideas from the literature review

- What drives participation?
- Who is participating and who isn't in learning?
- Development of a framework for how to get farmers to participate
- How relevant is the information to farmers - is it conflicting?
- Elimination of old ideas - is that a barrier?
- How could extension officers identify the barriers and implement and select approaches?
- How do extension officers design and implement programs to address barriers?
- How can extension officers contact the people that are not contacted now?
- Evaluation of extension provision EEA
- How do you get participation in formal education?
- How do you package relevance/make things relevant?
- What are the barriers to formal learning?
- Is it worthwhile contracting the non-participants - what return on investment is required for participation?
- What is the driving delivery and is this creating barriers?

Ideas from the interviews and survey

- What factors affect rural people's ability to manage change and what is the change agent in this situation?
- How do we get farmers to be more interested in learning?
- How does our target audience learn and what do they need?
- We could study behavioural change and what enables change.
- How do we improve engagement, manage attitudes, time constraints?
- We should find out if farmers want "receipts" or if they want solutions.
- What modes of delivery do we need to overcome barriers of participating? Do we need to look at weekend delivery, different technology, and partnership relationships on and off the job (between employees and providers)?
- We need research on the barriers to adoption from the lessons learnt by other extension efforts.
- Define how to acknowledge "heroic failure" in extension so such failures are seen as valuable learning lessons to be acknowledged rather than hidden.
- We need a better understanding of the market.
- We need to do some market research and describe innovative approaches to encouraging participation.
- We need to research things that relate to ethnology and learning systems.
- We need to research the social areas that underpin extension, including effective communication.

Below are other items that were suggested from the survey.

- Is extension a worthwhile investment?

A few people commented that they did not think research into extension and extension itself was needed. Some specific comments included:

- Do we need research on extension, or an increased focus on engaging business managers in participation?
- We don't need any more research into extension. We have glossy reports from every state department of agriculture and Research and Development Corporations that always come back to us saying we need 1:1 extension to achieve change.
- Defending the extension process – we need better means of evaluating and meeting accountability requirements. Most of the rest is there.
- I am not sure that we need an active extension program. People make the assumption that extension is a good thing. There has been some excellent work, but my understanding of it and other work is that the relationship between education, training and profitability is not strong especially for small, asset-based farmers.

Other issues and comments.

- Generally any research that is done has to be practical and have application. Every researcher has to understand that things have to be applied and that they will be applied differently on every farm. The research also has to be flexible, it needs to have synergy across the many boundaries, and the people doing the research need to have good people skills.
- These projects or studies should not be done as a one off project. We need to come back in twelve months and look at a longitudinal study. At the end we need to find out what has worked and what has not. We could learn a lot by studying the things that are not successful.
- Every extension issues should be addressed jointly, because extension is about people and how they learn. This will bring economies of scale and synergy through collaboration.

Appendix 3: Communication of developments in extension research and practice to Australian extension providers

Joint Research and Development Corporation Briefing Paper 4

By Amabel Fulton[1], David Fulton[1], Simon Read[2], Andrea Clowes[2] and David Heinjus[2]
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Introduction

This briefing paper proposes an overall strategy for the communication of developments in extension research and practice. The strategy is directed at users such as Australian agricultural development providers but could be valuable for a wide range of public and private organisations in other sectors. The objective of the strategy is to enhance human and economic development in agriculture through improving extension in Australia. The paper was developed through a review of the literature (reported in briefing paper 1), a broad consultation process regarding the state of Australian extension with more than 60 potential investors, researchers, practitioners and customers. The contents of this paper and the other three briefing papers[23] were discussed at a workshop in Melbourne at the end of August 2000.

The communication strategy is outlined, followed by a description of the advantages of the strategy over what is currently available; the target market; its relative strengths and weaknesses; and the likely benefits to the customers and the funders.

The strategy reflects current themes in agricultural extension present in the international and Australian literature. It aims to be exemplary of effective, efficient extension in its own right. The key principles underlying the strategy in this document are:

The need for effective, efficient, accountable research, extension and education services

The need to create research products that are valued by customers

The need to involve all members of the agricultural community in research, extension and education

The interdependency of research, extension and education

An interdisciplinary approach to extension research

The need to ensure research findings are captured and integrated into daily practice, leading to enhancing human and economic development in agriculture

The need for continuous improvement of research products

- Identifying, promoting and marketing research and research products that are relevant to industries, organisations and individuals outside of agriculture

A proposal for the communication of developments in extension research and practice to Australian extension providers

The strategy aims to improve the efficiency, effectiveness and accountability of extension in Australia by supporting extension providers (organisations and individuals) to implement developments that will value-add to their current and future extension efforts. It does this through building the relationships between extension research, extension practice and extension education, as well as between extension, research and education, industry and farmers within agriculture, and, as a whole, facilitating communication between all parties. This is achieved by working both with the individual extension and research practitioners, and also with their employing organisations and funders.

The strategy involves the creation of a demand-driven agricultural development industry that is seeking services to assist research, extension and education organisations to improve their effectiveness. Such services may be related to the organisational structures and functioning; the development of extension practitioners; the improvement of processes for facilitating change on farm; and the implementation of strategies for increasing farmer participation in learning opportunities. Examples of such services could be:

[23] Briefing paper 1: Summary of relevant recent and current R&D on agricultural extension, learning and change. Appendix 1 - briefing paper 2: Existing and potential innovative approaches to creating demand for learning and change. Appendix 2 - briefing paper 3: Opportunities for R&D to foster the development of human capacity in Australian agriculture

1. **Services for institutional and organisational structures supporting learning and change**

- evaluation of the effectiveness of extension services
- up-to-date information on extension provision in Australia
- advice on strategies for improving organisational effectiveness
- information on the latest research and practice on this topic
- development of policy to support extension / learning and change
- social impact assessment
- reviewing research, development and extension proposals
- supporting positive change in organisations

2. **Services for the professional development of farm advisers including their structural arrangement and careers**

- evaluation of the effectiveness of organisational support for extension practitioners
- provision of information on extension practitioners in Australia
- advice on strategies for supporting extension practitioners
- brokering of training programs
- updating of education and training programs
- information on the latest research and practice on this topic
- conferences and networking opportunities
- expert support for scientific researchers

3. **Services for the facilitation of enhanced learning processes on farm**

- evaluation of the effectiveness of extension processes
- advice on strategies for developing extension programs
- information on the latest research and practice on this topic
- reviewing extension proposals

4. **Services for overcoming barriers to farmer participation in learning opportunities**

- evaluation of the effectiveness of strategies to overcome barriers to participation
- information on the latest research and practice on this topic

Provision of information on the latest extension research and practice in Australian and overseas would depend on services such as:

- feedback from extension practitioners to extension researchers
- extension research and development
- continuously updated annotated bibliography of international and Australian research extension and
- a national extension library

How would the strategy be funded?

Funding bodies could invest in base-level project to make the information accessible and to market the services to potential customers.

Customers (such as state departments; formal training providers; private consulting firms) could purchase higher-level services at different levels of investment to receive different levels of service according to their needs. For example, the lowest level of investment would purchase information services; a middle level of investment would provide information and consulting services, and the highest level of service would provide information, consulting and collaborative research and development services. Alternatively, services could be purchased directly. For example, research corporations could purchase social impact assessment services; individual practitioners could purchase training brokering services; extension organisations could purchase evaluation services.

Who would provide the services?

Individuals, groups of individuals, organisations or groups of organisations, could provide services. For example, a network of extension researchers could have a contract to provide an annotated bibliography. Private consulting firms could have contracts to assist with training needs audits. The Australasia Pacific Extension Network could act as a training broker, and the Australian Institute of Agricultural Science and Technology could be funded to increase private sector involvement in professional development activities. A consortium of lecturers of under-graduate extension courses could be funded to develop a national curriculum for extension, available through web-based delivery. All extension deliverers could be funded (within their projects) to provide feedback on performance to extension researchers (in accordance with nationally agreed evaluation criteria). A private consultancy could be funded to publish this information, plus that from the annotated bibliography and other projects, on a national web site for extension.

How would the strategy be coordinated?

The strategy could be coordinated by an individual, a board of governance (perhaps having members from all the investors), a non-government organisation, or through the manager of the proposed Joint Research and Development Corporation program.

Advantages of the strategy over what is currently available

The current linkages between Australian extension research, practice and education are weak. This is due to lack of funding for extension research and education, and a lack of commitment by extension funders and providers to increase the effectiveness and efficiency of extension. This strategy, plus the development of a Joint Research and Development Corporation program on agricultural extension, would lead to significant benefits for Australia.

Target market for the strategy

The strategy would target funders, providers and practitioners in agricultural development. The services created would also be relevant to agriculture in other countries and to other sectors such as agribusiness, mining, manufacturing, government and service industries.

The relative strengths and weaknesses of the strategy

The approach of a demand-driven system ensures that the services (and research) that are provided directly reflect the needs of customers and funders. The basic level of investment in the program would ensure customers were aware of the potential benefits of using the services available. The strategy is focused on the implementation of change and development of human capacity, rather than the production of information. It builds existing structures and networks, rather than trying to create new ones. It involves all members of the research, extension and education community, and it allows for continuous innovation and improvement of services.

The likely benefits to the customer if the strategy was implemented

Customers would benefit directly from increased efficiency and effectiveness of their extension; improved human capacity; increased employee satisfaction; and continuous improvement of their staff and business.

The likely benefits to the funders of investment

Funders would benefit through increased efficiency and effectiveness of extension services and through the creation of services that would be in demand both within and outside agriculture.

Paper 6:

Providing client focused education and training

Kilpatrick, S., Fulton, A., and Geard, L. (2002) *Providing client focused education and training.* Report to Department of Agriculture, Fisheries and Forestry Australia. Launceston: Centre for Research and Learning in Regional Australia, University of Tasmania.

This is the final report of a multi-report consultancy for which Dr Sue Kilpatrick was Project Manager and Principal Investigator. My role was as sub-contractor and joint Principal Investigator. We were supported by a Project Officer, originally Rowena Bell and then Leonie Geard. Sue Kilpatrick and I contributed collaboratively to the project design, literature review, development of data collection tools, oversight of data collection (undertaken mainly by the project officer), stakeholder consultation and reporting (via steering committee meetings and workshops), data analysis (with Sue leading in the quantitative data analysis), case study reporting, development of recommendations, and to overseeing the content of the various reports.

The purpose of the report included as Paper 6 was to identify how training providers could best determine the content and processes they use to deliver training to address the needs of their target audience. The need for such research was identified by the Australian training subsidy programme, FarmBis, which recognized that the 'product-push' model of training delivery which dominated formal education systems, was not applicable for Australian primary producers. Rather, a 'needs-based' training delivery model was likely to be more appropriate. FarmBis funded the research so that it could support training providers to identify effective processes for ensuring that the content of learning activities for Australian primary producers was relevant to their changing needs, and evolves so as to always incorporate the best available knowledge and science.

This paper is placed sixth in the series because it builds on the understanding of the needs of family farm businesses in Australia as the focus for delivering effective training products and services. It demonstrates examples of best practice in successful design and delivery of training to family farm businesses. Such training organisations had a deep understanding of their clients needs, and partnered with industry and their clients to develop and continuously improve their training service delivery. In many cases, these training providers partnered with an intermediate organisation, described in the report as 'brokers', who were representatives of the target audiences. These brokers partnered with the training providers to ensure that service delivery addressed audience needs. Such a partnership model was found most likely to be effective in delivering client focused education and training. The project recommended strategies for training providers to be more client focused, and that further research was needed to explore the role of brokers in delivering client focused education and training.

FarmBis

Department of AGRICULTURE FISHERIES & FORESTRY - AUSTRALIA

Providing Client-focused education and training

Report for
Agriculture, Fisheries and Forestry Australia

September 2002

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Contents

Executive summary

Background and purpose

A wide range of education and training opportunities in agriculture are provided without on-going consideration of the changing needs of clients and the industry. At the same time, major changes to the funding of extension, education and training in Australian agriculture may result in the creation of gaps in the delivery of 'public good' learning opportunities. While the international literature suggests that collaboration is an effective way to deliver education and training, there has been little evidence that this is occurring to any large extent in Australian agriculture.

Education institutions, training providers and other learning facilitators have a key role in determining the content (as well as the format) of structured learning. Primary producers' access to learning opportunities is determined largely by what is available in the marketplace. Primary producers are not necessarily well informed about alternatives, nor do they necessarily have the ability to select or negotiate training that best matches their needs

Economic benefits from a better understanding of successful strategies for providing client-focused education and training include more efficient delivery, leading to increased farm and industry sustainability, profitability and capability to manage change. Government will benefit from a better return on its investment in agricultural education and training. Environmental benefits will come from assisting education and training providers to address gaps in education and training, and thus skill industry and community to meet the environmental changes facing Australian agriculture. Improved relationships and capabilities between agricultural education and training providers, clients and industry will increase social capital within regional communities and communities of common interest, such as agricultural commodity groups.

The focus of this project is broad, and, although sponsored by FarmBis, its scope extends beyond the FarmBis program. The aim of FarmBis is to leave a legacy of a learning system that is constantly evaluating and revising its activities and is responsive to internal and external stimuli. This project aims to identify effective processes for ensuring that the content of learning activities for Australian primary producers is relevant to the changing needs of its clients, and evolves so as to always incorporate the best available knowledge and science.

The objectives are to determine:
1. How education and training providers decide what to offer.
2. The characteristics of providers who are successful in meeting industry or client needs.
3. The process by which education and training providers negotiate with industry, clients and providers of service to agriculture.
4. The role of partnerships and collaborations with a) other providers, and b) with other groups such as government and industry in meeting industry or client needs.

Findings

How education and training providers decide what to offer

The literature review noted that collaborations around education and training were more effective if the learning activities developed and delivered were highly relevant to all the partners. This suggests that all stakeholders need to have input into deciding what learning activities are offered if there is to be effective collaboration in developing education and training programs. The provider survey and case studies identified the significance of industry organisations and government agencies in determining the training that is provided. They, as well as the target participant group should have input into the learning activities that are offered to ensure that they are relevant to their identified needs. Industry organisations

and government agencies should ensure they participate in formal consultation process with providers in making providers aware of members' training needs.

The characteristics of providers who are successful in meeting industry or client needs

The survey findings showed that individual public and private providers of all sizes and running all types of programs consistently appear in the top rank group in relation to good practice criteria. However, the majority of providers that scored best on the composite index have characteristics that are associated with large providers.

The process by which education and training providers negotiate with industry, clients and providers of service to agriculture

Providers who use a process that suggests they are successful in meeting industry or client needs consult with a wide range of stakeholders in negotiating the learning objectives and content of training programs. A partnership model where providers work in partnership with the target group and brokers, who may be industry organisations or government agencies, is most likely to be effective. This model and process is facilitated by all partners having a good understanding of each others' culture. According to the literature review, such a broker-client-provider partnership resourced with people skilled in working across the producer-industry-education sectors cultural divide is likely to lead to successful education and training outcomes.

The role of partnerships and collaborations in meeting industry or client needs

The case studies and the literature review demonstrated the benefits that can arise from joint approaches to learning, and a range of ways in which a client focused approach to education and training can be achieved. These benefits can be summarised as leading to a more innovative and competitive rural sector. A rural industry training market that is a learning system characterised by on-going collective learning through collaborations and partnerships of providers, producers and other government and industry bodies should be the aim of all stakeholders. Brokers or intermediaries play a key role in forging a learning culture. Partnerships where industry is proactive in initiating and maintaining linkages and relationships tend to be the most successful. Industry organisations and government agencies appear to have most of the characteristics and resources required of effective, proactive and well-networked brokers.

Implications

There appear to be two drivers for the development of education and training programs. One is problems or opportunities identified by people and organisations that could be termed 'scanners', the other is learning needs expressed by individuals or enterprises who want to participate in learning activities. Brokers and 'champions' can play an important role in assisting individuals and enterprises to identify and articulate learning needs. There is a cyclic aspect to program development. A need originally identified by scanners typically eventually becomes an established program that may be modified by providers from time to time, but essentially cycles through participants and providers with little or no input from other stakeholders such as industry organisations. If the providers do not have a scanning role themselves, regular contact with scanners reduces the risk of isolation from new ideas with education and training implications.

Recommendations

1 How providers can develop education and training products which both meet the demands of industry and maximise the capabilities of the provider.

1.1 Industry organisations and government agencies are significant players in determining the training that is provided. They, as well as the target participant group should have input into the learning activities that are offered to ensure that they are relevant to their identified needs. Providers should ensure they participate in formal consultation process with industry organisations, regional groups and government agencies, and work to ensure that their long-term strategies include training.

1.2 Providers should work in partnership with the target group and brokers, who may be industry organisations or government agencies, in order to most effectively provide client focused education and training.

1.3 Training products that are developed need to be flexible and be modified to incorporate the clients' context and use examples drawn from the clients' experience. This will ensure that training is really relevant, and goes beyond being aware of training needs to a deeper level of understanding of training needs.

1.4 Providers should take on the role of 'scanners' as per the model illustrated in Figure 3, scanning for new opportunities and problems that could be addressed by training. A 'scanner' is a term used in the report to describe an individual or organisation which identifies training needs not yet being expressed by potential participants

1.5 Providers should use the good practice criteria identified on page 4 as a checklist to see if they meet best practice criteria. Providers should pay particular attention to the seven sub-criteria listed below:

- Process for monitoring changing needs,
- Involve clients in planning,
- Wide networks of providers, industry organisations, government agencies. technical expertise, researchers and/or community organisations, according to context,
- Act on result of monitoring strategies,
- Share resources,
- Information on training pathways, and
- Trainer standards.

All providers, especially though who are accredited, should pay particular attention to criterion 1, which is not well covered by the accreditation quality assurance procedures.

2 How to maximise opportunities for education and training providers and client groups to learn together for continuous improvement in the delivery and uptake of learning opportunities.

2.1 All stakeholders (participants, providers, industry organisations, government agencies, researchers, funders and regional groups) should adopt a learning communities approach that builds and maintains relationships. The learning communities should have scanning strategies (Figure 3, page 9) that identify new opportunities and problems that could be addressed by training. The learning communities must have communication strategies that ensure relevant stakeholders are made aware of these new opportunities and problems. For example, industry organisations should be scouring their networks for

future training needs. They, or other brokers in the learning community, must have channels to providers who can partner in the development of new training programs.

2.2 Industry organisations should actively seek out appropriate providers and funders and communicate the needs of those they represent. Providers should seek other providers to craft a wide choice of pathways to further training for their clients.

2.3 Networking opportunities for training providers, industry organizations and other stakeholders are the responsibility of all stakeholders. For example, industry organisations should invite providers and funders to their planning days.

2.4 An asset based approach to skills and training can contribute to a learning culture by valuing the skills and knowledge of clients/ the target groups. This builds self-confidence and engenders a learning culture that improves participation. Recognition of current competence is consistent with an asset based approach. All stakeholder groups should promote the value of training from their own perspective at every opportunity.

2.5 Providers need to be proactive in developing their own skills and expertise in providing client focused education and training. Providers should ensure they are part of learning communities with other providers.

2.6 Training is part of a continuous cycle of improvement. There must be ongoing monitoring of needs and evaluation of the effectiveness of training outcomes. Action on the results of monitoring and evaluation is crucial. Sub criteria 1c, 1d, 1f, 2d, 2e, 2f, 4c, 4f, 4g, 5b, 5c form a checklist for continuous improvement (page 9).

2.7 Funders should consider best practice criteria in providing client-focused education and training when allocating funding.

2.8 Stakeholders in the provision of client focused education and training need to develop self-sustaining networks that include providers, industry organisations, government agencies, funders, researchers and other interested stakeholders such as regional or community bodies.

3 Future research

3.1 The criteria need to be tested against the client outcomes from training – does following good practice as defined here lead to better outcomes for participants and other clients (ie. industries as a whole and government)?

3.2 Further research is need into how best to broker training, including the roles of industry and funders such as FarmBis.

3.3 Workshop participants identified actions they were going to take as a result of what they had learnt at the workshop. To maintain the momentum built by the project, as a mechanism for ongoing dialogue on the issues identified, and to assess adoption of the recommendations, a follow up workshop in approximately six months time is recommended.

Providing Client-focused education and training

Final Report

Background

A wide range of education and training opportunities in agriculture are provided without on-going consideration of the changing needs of clients and the industry. At the same time, major changes to the funding of extension, education and training in Australian agriculture may result in the creation of gaps in the delivery of 'public good' learning opportunities. For example, the changes announced to the Commonwealth policy "FarmBis Skilling Farmers for the Future" program have major implications for the Property Management Planning program as it moves to private sector delivery. Consultation with States on the implementation of this policy suggests that there are gaps in provision of environmental and natural resource management training, and some other areas such as risk management.

Opportunities exist for identifying successful strategies that education and training providers, industry, and clients can use to ensure the education products meet industry and client needs. For example, while the international literature suggests that collaboration is an effective way to deliver education and training, there is little evidence that this is occurring to any large extent in Australian agriculture. Such an approach would allow the industry to capture and benefit from the expertise and skills of University and TAFE providers, displaced property management planning staff, and private providers.

Economic benefits from a better understanding of successful strategies for providing client-focused education and training include more efficient delivery, leading to increased farm and industry sustainability, profitability and capability to manage change. Government will benefit from a better return on its investment in agricultural education and training. Environmental benefits will come from assisting education and training providers to address gaps in education and training, and thus skill industry and community to meet the environmental changes facing Australian agriculture. Improved relationships and capabilities between agricultural education and training providers, clients and industry will increase social capital within regional communities and communities of common interest, such as agricultural commodity groups.

Why do this project?

> There should be far more co-operation and cohesion in the way that we approach learning, education and training... co-operation between education institutions, but **also far more co-operation between the education institution and their clients**... We need to develop a plan on the industry as a whole, and this involves all the farming organisations and the service providers and the government training institutions, education institutions, ... as to how we are going to equip our industry with the knowledge and skills that they need to compete far more effectively.
> *Participant in the Future Training Directions in Australian Agriculture survey* (Kilpatrick, 1996b) cited in Fulton and Weatherley (2000)

Education institutions, training providers and other learning facilitators have a key role in determining the content (as well as the format) of structured learning. Primary producers' access to learning opportunities is determined largely by what is available in the marketplace. FarmBis has an important role in attempting to change this situation so that training is driven more by client needs. Primary producers are not necessarily well informed about alternatives, nor do they necessarily have the ability to select or negotiate training that best matches their needs. Primary producers deserve to choose from the best possible range of training products, a range that draws on all relevant available knowledge and research.

For this range of training products to be available, providers must be well informed about relevant scientific, social, economic and environmental knowledge and research. Carney (1998) cites many examples where government research and extension are isolated from clients. For the best range of training products to be available, providers must be aware of producer and industry needs. Representative organisations and government have, or are in a position to establish, relationships with both producers and providers. They are in a position to act to improve information flows between producers and providers.

There are benefits in focussing on the demand-side of the training market, including enhanced relevance, quality and efficiency of training. Dialogue with representative organisations and government as well as enterprises can act to avoid the risk of a demand-side focus identified by Billett and Hayes that applies in the Australian vocational education and training system:

> A shift to an enterprise focus [for determining training needs] may be responsive to the needs of enterprises, particularly large enterprises, but has the potential to result in highly localised skill development rather than achievement of longer-term industry and individual goals. (Billett and Hayes 2000, p. v)

The growing focus on learning for natural resource management (NRM) brings with it a complex definition of the client in the demand-side of the training market. Producers can benefit from learning activities in this area (private benefit), but there are a range of other beneficiaries including other producers, other industries, communities and society as a whole (public benefit). Government can be regarded as a client of natural resource management education and training, representing these other beneficiaries.

Importance of relevant content
The 2000 and 2001 Annual Follow-Up Surveys of FarmBis Participants undertaken by Roy Morgan Research found that content was the most important factor influencing farmer participation in learning activities. Several researchers have found that if information or training is not seen as relevant and applicable by farmers they are unlikely to access or use it (Keen and Stocklmayer 1999, Kilpatrick 1996, Kilpatrick *et al.* 1999). Beer *et al.* (1996) report a similar finding in organisational management literature that shows change is resisted if lower level managers cannot see a connection to their business goals. This also relates to research, with the lack of relevance of research and research findings to tackling industry issues being identified as a significant barrier to extension (Rose 1996).

The purpose of this project

The focus of this project is broad, and, although sponsored by FarmBis, its scope extends beyond the FarmBis program. The aim of FarmBis is to leave a legacy of a learning system that is constantly evaluating and revising its activities and is responsive to internal and external stimuli. This project aims to identify effective processes for ensuring that the content of learning activities for Australian primary producers is relevant to the changing needs of its clients, and evolves so as to always incorporate the best available knowledge and science.

Definitions

The term *education and training* encompasses any organised learning activity, which may range from a field day or an information seminar, to a degree program (Fulton and Weatherley 2000).

For the purposes of this project, *clients* are primary producers/land managers and their representative organisations. Government can be considered a client when it is purchasing training. Providers are deliverers or facilitators of learning activities.

Clients can be categorised into:

- Individual clients
- Enterprises (individual businesses)
- Industry (representative organisations)
- Government

In summary, providing client-focused education and training means making accessible facilitated structured learning activities that are informed by the needs of primary producers/land managers, their representative organisations and/or government.

Objectives

The objectives are to determine:

1. How education and training providers decide what to offer.
2. The characteristics of providers who are successful in meeting industry or client needs.
3. The process by which education and training providers negotiate with industry, clients and providers of service to agriculture.
4. The role of partnerships and collaborations with a) other providers, and b) with other groups such as government and industry in meeting industry or client needs.

Methods

The project used the following methods to address these objectives:

Literature review (Objectives 1, 2, 3)

The literature review examined approaches for providing client driven education and training in other countries and industries. It reviewed literature on partnerships and collaborations around learning in agriculture and other industries. It has identified six categories of models of partnership arrangements (listed in the Findings under Objective 3, How education and training providers decide what to offer).

There are many benefits from partnerships described in the literature review, some at the level of the training system, but many, more importantly are benefits for industry in the medium to long term. These benefits can be summarised as leading to a more innovative and competitive rural sector. The literature review has identified enhancers and inhibitors of partnerships and collaborations around learning. Having effective opportunities and structures for interaction that are resourced with people skilled in working across the producer-industry-education sectors cultural divide lies at the heart of successful partnerships.

The attributes or qualities of a learning system, which partnerships should work to develop and maintain, are identified. They relate to norms and values, knowledge, skills in working together and with others and interactional infrastructure. A rural industry training market that is a learning system characterised by on-going collective learning through collaborations and partnerships of providers, producers and other government and industry stakeholders would be a fitting legacy of FarmBis.

This review demonstrated the benefits that can arise from joint approaches to learning, and a range of ways in which a client focused approach to education and training can be achieved. There is little detailed evidence, however, about how these approaches are established, implemented and maintained, particularly in Australian agricultural education and training. Neither is there evidence from the literature of the extent to which they are used within the rural training sector, nor which models are appropriate for each particular set of circumstances.

The full literature review appears in Appendix 1.

Workshop (Objective 1)

A workshop was held in October 2001 to assist with developing criteria to assess the process that partnerships go through to plan and develop training. The 41 workshop participants included representatives from industry, training providers and government. From the workshop five draft criteria of good practice in the process of working with others (providers, participants, industry organisations, researchers etc.) to plan and develop training were developed. These criteria were used as the basis for the development of the survey instrument administered to providers of agricultural education and training in Australia.

The five good practice criteria are:

1. Understand client needs and motivations to participate
2. Clearly define objectives, measure and follow up on outcomes
3. Efficient use of resources that ensures good value training for participants
4. Recognition of current skills and clear and accessible pathways to learning activities
5. Mechanisms for ensuring appropriate delivery of training

A number of sub criteria were identified under each of the criteria. A report on the workshop including a full list of the sub criteria appears in Appendix 2.

Provider survey (Objectives 1, 2 and 3)

Extensive searching of the State and Territory FarmBis databases yielded a total of 339 training providers or organisations after duplicate and out of date listings were eliminated. A total number of 141 training providers were surveyed by telephone. A copy of the questionnaire and the report on the provider survey appears in Appendix 3.

Case studies (Objectives 1, 2, 3)

Four cases of client focused training were selected from the top ranked 37 training programs in a survey of Australian FarmBis providers[1].(for further information on ranking training programs see Appendix 3) Drawing on the tape recordings of the survey interviews, additional interviews and workshop presentations by the four providers, each example was written up as a case study. The case study reports appear in Appendix 4.

Stakeholder workshop (Objectives 2, 3, 4)

A stakeholder workshop was held in July 2002 to validate the findings regarding good practice in planning and developing training, and to capture the actions that providers and other stakeholders could take in the light of the findings. The 34 workshop participants included training providers and representatives from industry, and government. A report on the workshop appears as Appendix 5.

Findings against objectives

How education and training providers decide what to offer

The literature review noted that collaborations around education and training were more effective if the learning activities developed and delivered were highly relevant to all the partners. This suggests that all stakeholders need to have input into deciding what learning activities are offered if there is to be effective collaboration in developing education and training programs. Stakeholders include the categories of clients listed in the definitions above: individuals and primary production enterprises, industry and, when it is purchasing training, government.

[1] Kilpatrick et al. (2002) Providing client focused education and training. Summary to date. A report for Agriculture, Fisheries and Forestry Australia.

Ranking : to determine performance against each criteria, respondents were allocated 0, 1 and 2 points for scoring best, good or poor respectively in each sub-criteria. These scores were then summed and the respondents ranked in order. The bottom 25% of respondents were placed in the 'bottom' category and the top 25% placed in the 'top' category. The remainder were placed in the 'mid' category.

From the provider survey, the groups most often consulted in determining what training was needed were the target group, industry organisations and government agencies. The target group of primary producers was consulted in 75% of cases, but least often by the providers in the bottom rank against the criteria as a whole (see Table 1). Top ranked providers were more likely to consult industry organisations and government agencies in particular. Around a third of providers consulted only one category of stakeholder in determining needs, another third consulted two categories. Top ranked providers were most likely to consult more than two different stakeholder categories, with over half consulting three or more stakeholder categories (Table 2).

Table 1 Training needs consultation

Consult in determining training needs	top 25%	mid 50%	bottom 25%	Total
target group	26	61	19	106
	76.5%	81.3%	59.4%	75.2%
industry organisations	29	33	5	67
	85.3%	44.0%	15.6%	47.5%
government agencies	19	21	12	52
	55.9%	28.0%	37.5%	36.9%
other providers	7	12	3	22
	20.6%	16.0%	9.4%	15.6%
private brokers	3	12	5	20
	8.8%	16.0%	15.6%	14.2%
researchers	3	4	0	7
	8.8%	5.3%	0.0%	5.0%
technical experts	6	5	4	15
	17.6%	6.7%	12.5%	10.6%
community organisations	0	1	0	1
	0.0%	1.3%	0.0%	0.7%
other	2	2	0	4
	5.9%	2.7%	0.0%	2.8%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

Table 2 Number of stakeholder categories consulted in determining training needs

No. of categories consulted	top 25%	mid 50%	bottom 25%	Total
1	5	26	15	46
	14.7%	34.7%	46.9%	32.6%
2	9	30	13	52
	26.5%	40.0%	40.6%	36.9%
3	12	13	1	26
	35.3%	17.3%	3.1%	18.4%
4 or more	8	6	1	15
	23.5%	8.0%	3.1%	10.6%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

Slightly more than half the providers used only informal consultation process in determining needs (Table 3). Top ranked providers were more likely to use formal processes.

Table 3 Nature of needs consultation process

Needs consultation process	top 25%	mid 50%	bottom 25%	Total
formal	22	30	9	61
	64.7%	40.0%	28.1%	43.9%
informal	10	40	23	73
	29.4%	53.3%	71.9%	52.5%
both	2	3		5
	5.9%	4.0%		3.6%
no consultation		2		2
		2.7%		1.4%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

Case studies from the Workshops

From the case studies examined in the first and second workshops (Table 4), a range of approaches to deciding what to offer were identified. These were either industry identified (Recognition of Prior Learning and Responsible Rural Safety Management), provider identified (Grazing for Profit, Liz Alford and Challenge 2020) or a combination of both (Tasmanian Board of Agricultural Education and the Edge Network). Both provider and industry-identified examples were evident in the top case studies identified through the survey. This suggests that the critical issue for being successful in delivering client focused education and training is whether or not the content is addressing client needs, not who identifies what these needs are. A brief description of the process used by each of the case studies selected from the survey is presented below.

Table 4 Case studies

Case study	Type of provider	Approach to deciding what to offer
Tasmanian Board of Agricultural Education	Single-state industry organisation	Consultation with clients, industry organisations and other deliverers
Liz Alford	Single-state private provider	Matching provider expertise to client needs
Edge Network, Meat and Livestock Australia	Multi-state public funder	Consultation with clients, industry organisations and deliverers
Grazing for Profit, Resource Consulting Services Pty Ltd	Multi-state private provider	Identifying successful model from overseas, testing and trialling it in Australia
Recognition of Prior Learning, Southern Queensland Institute of TAFE, University of Queensland	Single-state public provider	Commissioned by industry organisation
Responsible Rural Safety Management, AgForce Training	Single-state public provider	Commissioned by industry organisation
Challenge 2020, PIRSA Rural Solutions	Single-state public provider	Identification of research products, combined with client needs

Grazing for Profit

Resource Consulting Services identified the need for the Grazing for Profit course after observing the success of a similar program overseas.

> "There was good evidence from those producers that it had been run with overseas that the course was having a major impact."

The course was modified to "Australianise" the material. Introductory sessions were used to identify general producer interest in the course, and enrolments indicated client commitment.

> "That is probably how you get your audience is by introducing it to people. They come along if they think they need it. Fundamentally that is how you know whether they think they need it or not. The first one was well received so it just moved forward from there."
>
> "I guess you have what participants think they want, what deliverers think participants need, and if you can get some sort of happy medium you are doing a good job."

Recognition of Prior Learning

The Queensland Rural Industry Training Advisory Council (QRITC) identified the need for Recognition of Prior Learning program. This Council holds the contract for the regional coordination network for FarmBis. The latter group worked very closely with industry, training providers and with individual producers to develop the objectives, content and format of the course. Through the industry advisory council, a group of registered training organisations in the horticulture/agriculture area were brought together to consider how Recognition of Prior Learning might work, what outcomes were needed and what quality assurance systems were needed to ensure all training providers would assess skills consistently. Over 500 producers were consulted with through the QRITC, member organizations, and in the FarmBis coordinators discussions with clients.

> "The FarmBis coordinators, via the ITAB, put a lot of effort into it. They had the idea, and the finances towards this specific area. They got the participants up to the stage of being more interested, asking questions about how it might work, and we took over from then. They had a lot of time in group sessions making sure it was a good idea for the area."

Responsible Rural Safety Management

The need for the safety course was identified by the AgForce Training, whose mission is to address member's' needs in on-going learning and skills development so members have viable, sustainable businesses. Once the need for safety courses for members was identified, AgForce sought out trainers with whom they could partner to develop and implement a course that met members' needs. Some courses were already in existence, however course attendance was low, and AgForce members were providing feedback that the two-day courses were too long, too expensive, and would be better if condensed into a one-day course. Producer feedback was obtained from members ringing AgForce Training of their own accord, speaking-up at branch meetings and through feedback at a workshop on rural safety at the annual AgForce conference.

After some months of unsuccessful negotiations with a number of potential partnering organizations, AgForce felt the best approach would be to develop its own course by identifying an individual safety training expert to work with.

> "The trainer we partnered with had been delivering rural safety courses anyway, she was a producer, qualified in first aid and a nursing sister. So she had a wealth of experience and was passionate about the whole issue."
>
> "Because she had a wide knowledge of the subject area, and we were aware of our producers' needs, we discussed what needed to be done within the framework of the National Training Package. She did a lot of the development of the hard copy data and what we put in the manual. We had numerous phone meetings and then emailing information backwards and forwards."

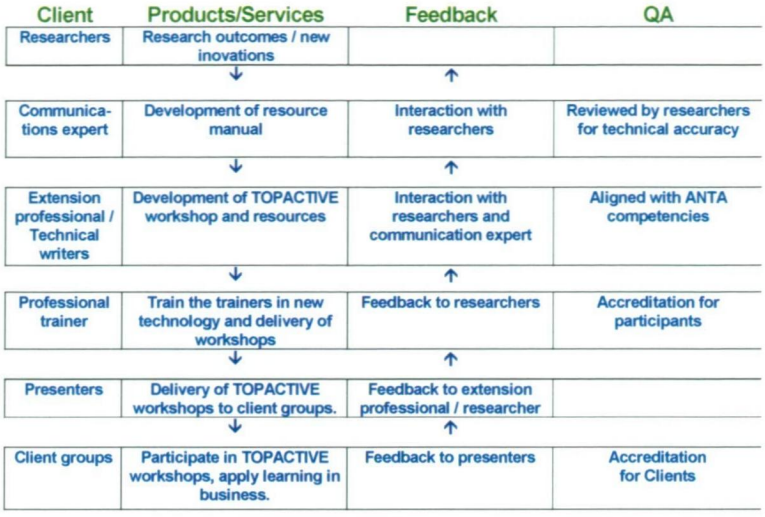
Challenge 2020

The need for Challenge 2020 was identified by PIRSA Rural Solutions based on experience and feedback from participants in previous programs, Top Crop and Right Rotations. This showed that producers wanted training in a range of areas, and they wanted to determine what those areas would be. TopCrop was successful with farmer groups, but was limited in its focus to crop monitoring and management issues. The program Right Rotations took the approach of asking farmer groups to identify the major issues affecting their on-farm production, but was only designed to deliver one training product per year.

> "We knew farmers liked to get together in groups situations and be involved in training, but they wanted half day workshops which were interactive, on one topic and reactive to their immediate needs. We built this into our packaging process. We packaged up some of old Right Rotations work and crop monitoring to kick start the process. We marketed the idea to research organisations and other consultants who were already delivering good programs to their existing clients. Over five years the program got momentum and produced about 70 of these workshop packages that deal with a range of on-farm and financial management issues. This becomes a suite of activities that farmers can select from to meet their learning needs."

Funding for the packaging of the suite of workshops came from the Grains Research and Development Corporation. The topics of the packages were identified through a range of mechanisms: needs analysis with farmer groups, key outcomes from research organisations, or from packaging up existing training courses being offered by consultants (see Figure 1).

Figure 1 The TopActive Research/Adoption model



In summary, industry organisations and government agencies are significant players in determining the training that is provided. They, as well as the target participant group should have input into the learning activities that are offered to ensure that they are relevant to their identified needs. Industry organisations and government agencies should ensure they participate in formal consultation process with providers in making providers aware of members' training needs.

The characteristics of providers who are successful in meeting industry or client needs

The survey findings showed that individual public and private providers of all sizes and running all types of programs consistently appear in the top rank group in relation to good practice for all five criteria. Inspection of those with the highest number of best practice scores on all the sub-criteria shows that large and small private and public providers with a wide variety of training programs are represented at the very top of the ranked list. Thus it is possible for providers to use best practice methods in developing training programs regardless of the type of program they develop and the characteristics of the provider.

However, the majority of providers that scored best on the composite index have characteristics that are associated with large providers.; they offer more than five programs, are likely to operate in more than one state and are not totally reliant on FarmBis funding. There is some suggestion that they are more likely to be public providers. The literature review found that networks that extend outside the community/ sector and give access to advice, resources and specialist providers enhance collaborations and the programs that result. Large providers are more likely to have access to more extensive networks because they operate in a number of locations and have a larger staff, each with their own network. Large providers may also bring more human infrastructure to collaborations around training (another enhancer); they may be more likely to have people to allocate to assist in the day to day functioning of collaborations in developing education and training programs.

From the survey, the workshops and the case studies, seven sub-criteria appear to be associated with good practice performance generally. They are:

- Process for monitoring changing needs (1c),
- Involve clients in planning (1d),
- Wide networks of providers, industry organisations, government agencies. technical expertise, researchers and/or community organisations, according to context (1e),
- Act on result of monitoring strategies (2f),
- Share resources (3c),
- Information on pathways (4c) and
- Trainer standards (5a).

Examples of how the four selected case studies presented at the second workshop addressed these sub-criteria are detailed below:

Process for monitoring changing needs

Providers with close links to industry organisations were able to monitor changing needs by keeping in contact with the industry organisations. AgForce Training, the training arm of the industry organisation AgForce, is in direct contact with its clients. In the case of the recognition of prior learning, providers were contracted to address the industry's identified needs. Both the industry identified and provider identified training used needs analysis to monitor changing needs (Challenge 2020, Responsible Rural Safety Management), whilst other providers used informal and on-going evaluation to monitor changes in needs.

For example, in Grazing for Profit works closely with participants, past-participants and FarmBis, the training providers are able to continuously improve their course content and delivery. Participants are formally asked for feedback on the course between six to eight times during the course, by reporting on "What went well" and "What could be better". This participant feedback, plus that obtained through the FarmBis evaluation forms, is combined with self-evaluation by the deliverers. Past participants, many of whom engage in further training with Resource Consulting Services, also provide feedback on the usefulness of the course.

> "Facilitators evaluate their own performance, filling out a green form with 'Actions I'm going to take next time I'm running this course'. We sit down once a year and say what changes are we going to need to make to improve over time.

Involve clients in planning

All of the four case study programs involved clients in planning. In some cases this was prior to the initiation of the program (RRSM and RPL), in other cases it was during the design of the project (Challenge 2020), or during the initial stages of the delivery of the program (Grazing for Profit). For Challenge 2020 each workshop had a team overseeing its development. Team members may include potential participants, consultants and deliverers. Pilot-workshops are tested in the field with growers before the workshops become certified by Challenge 2020.

Wide networks

Each of the high ranking case studies from the survey demonstrated wide networks with a range of partners, particularly the target group, industry organisations, government agencies, technical experts and other providers. The nature and extent of consultation with these networks varied with each provider. Of all the case studies, the Tasmanian Board of Agricultural Education had the widest networks, being formed in a manner that ensured all stakeholders were involved in the organisation.

Act on result of monitoring strategies

The four case studies used both formal and informal strategies for monitoring, and emphasised the importance of acting on the feedback. In the case of Grazing for Profit, for example, evaluation is conducted throughout the delivery process and at the end of the process, both by participants and by deliverers. The outcomes of this evaluation are used to further develop both the course, and the skills of the deliverers.

Share resources

In developing and delivering their training programs, all of the four case studies worked in partnership with other groups. Grazing for Profit worked directly with its target group, while other programs also worked with the relevant government agencies and the industry body to develop and deliver training. In the case of the Recognition of Prior Learning program, the providers also worked with other providers to agree on prices and standards for assessment.

Information on pathways

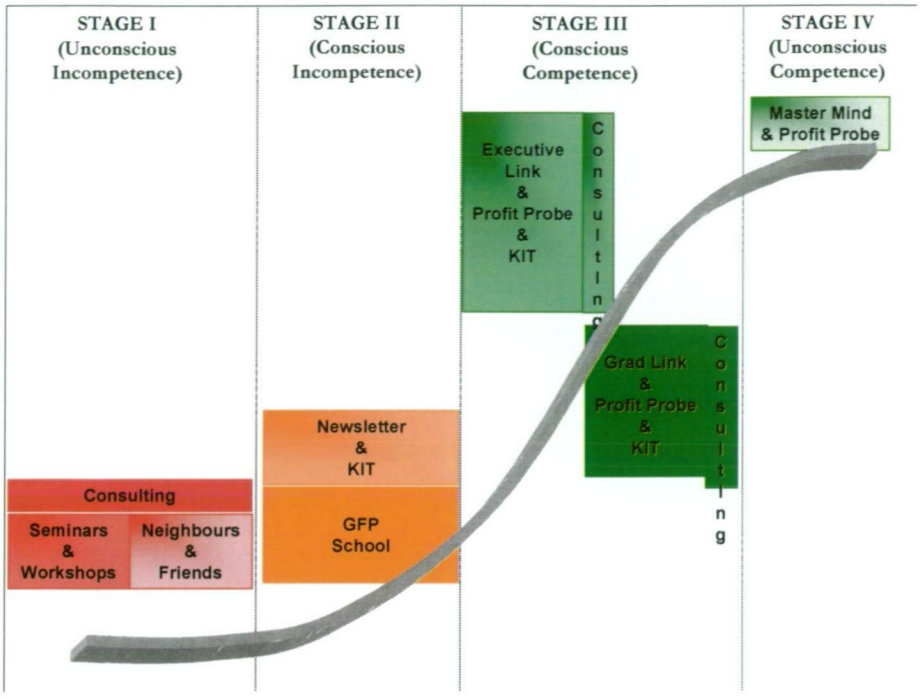
All of the programs provided information on pathways for further training. The RPL and RRSM programs, in particular, assessed skills and offered further training, provided information on other courses, provided contacts to other providers/resources and mapped pathways to formal training.

In the case of the RPL program, the process of training needs analysis provides a benchmark for the start of a life-long learning process, and the providers encourage participants to follow this path.

> "For a lot of these people there was no opportunity for them to gain a qualification without completing a full course. There are a lot of people in the industry that have learned a lot over 20 or so years, so wanted to get them to have a benchmark of where they have started, and everything they do from there on takes them to another level or some other training."

Grazing for Profit is part of a range of products offered by Resource Consulting Services, aiming to assist people through the process of change (see Figure 2). This course does not include recognition of prior learning, but its follow-on courses do. Participants are provided with links to future training opportunities.

Figure 2 RCS products throughout the process of change



Trainer standards

Both educational and content qualifications were a minimum requirement of all of the four case study programs, with the exception of Grazing for Profit. While Grazing for Profit requires trainers to have formal content qualifications, it does not require them for facilitation. The program is moving towards this, but does have its own mechanisms for ensuring its trainers are well prepared.

"We ddevelop the people delivering the course – we ensure people are capable. They have first hand knowledge of what they are delivering, have a commitment to it, believe in it, plus have the technical skills and facilitation skills. One of our characteristics is that we actually have great people delivering our courses."

The process by which education and training providers negotiate

This section discusses the process by which education and training providers negotiate with industry, clients and providers of service to agriculture. The provider survey captured information about several steps in the process by which education and training providers negotiate with industry, clients and providers. They are setting learning objectives, determining course content, monitoring changing needs to ensure the program remains relevant, and pathways to further learning activities.

The learning objectives of a training program, and the content that is needed to meet those learning objectives, are at the heart of training programs. This is where there is scope and opportunity for negotiation between providers and clients (the target group, industry organisations and government if relevant). Just over 90% of providers obtained input from other groups into the learning objectives, and there was an average of two groups consulted per program. The main groups consulted were the target

group, industry organisations and government agencies. Industry organisations and government agencies were consulted in setting learning objectives by more than 40% of the training providers surveyed, including over 60% of the top ranked providers. The target group was consulted by 38% of all the providers (see Table 5).

Table 5 Consulted in setting learning objectives

Consult in setting learning objectives	top 25%	mid 50%	bottom 25%	Total
target group	12	32	8	52
%	35.3	44.4	25.8	38.0
industry organisation	24	32	4	60
%	70.6	44.4	12.9	43.8
government agency	21	26	9	56
%	61.8	36.1	29.0	40.9
other training providers	5	15	4	24
%	14.7	20.8	12.9	17.5
private brokers	5	10	4	19
%	14.7	13.9	12.9	13.9
researchers	2	7	1	10
%	5.9	9.7	3.2	7.3
technical experts	10	10	3	23
%	29.4	13.9	9.7	16.8
community organisation	0	1	1	2
%	0	1.4	3.2	1.5
other	1	5	4	10
%	2.9	6.9	12.9	7.3
no one	2	3	7	12
%	5.9	4.2	22.6	8.8
Total	34	72	31	137
%	24.8	52.6	22.6	100

Over 40% of providers used only informal consultation or no consultation in determining content (Table 6). Top ranked providers were more likely to use formal processes, and have input from more categories of stakeholders or groups into learning objectives and content (Tables 7 and 8).

Table 6 Nature of content consultation process

Content consultation process	top 25%	mid 50%	bottom 25%	Total
formal	21	32	7	60
	61.8%	42.7%	21.9%	42.6%
informal	7	28	14	49
	20.6%	37.3%	43.8%	34.8%
both	6	11		17
	17.6%	14.7%		12.7%
no consultation		4	11	15
		5.3%	34.4%	10.6%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

Table 7 Number of stakeholder categories having input into learning objectives

No. of categories having input into learning objectives	top 25%	mid 50%	bottom 25%	Total
1	3	29	13	45
	9.4%	42.0%	54.2%	36.0%
2	14	23	9	46
	43.8%	33.3%	37.5%	36.8%
3	11	10	1	22
	34.4%	14.5%	4.2%	17.6%
4	4	4	1	9
	12.5%	5.8%	4.2%	7.2%
5		1		1
		1.4%		.8%
6		2		2
		2.9%		1.6%
Total	32	69	24	125
	100.0%	100.0%	100.0%	100.0%

Table 8 Number of stakeholder categories having input into content

No. of categories involved in choice of content	top 25%	mid 50%	bottom 25%	Total
1	5	21	16	42
	14.7%	28.8%	61.5%	31.6%
2	9	25	8	42
	26.5%	34.2%	30.8%	31.6%
3	9	10	1	20
	26.5%	13.7%	3.8%	15.0%
4	5	11	1	17
	14.7%	15.1%	3.8%	12.8%
5	2	4		6
	5.9%	5.5%		4.5%
6	2	1		3
	5.9%	1.4%		2.3%
7	1	1		2
	2.9%	1.4%		1.5%
8	1			1
	2.9%			.8%
Total	34	73	26	133
	100.0%	100.0%	100.0%	100.0%

Top ranked providers have more meetings and consultations in developing the content of training programs than bottom ranked providers (Table 9). The vast majority reported that the consultation process had been very effective (Table 10).

Table 9 Frequency of consultation re content

Frequency of consultation	top 25%	mid 50%	bottom 25%	Total
no consultation	1	5	11	17
	2.9%	6.7%	34.4%	12.1%
once	1	5	4	10
	2.9%	6.7%	12.5%	7.1%
2 or 3 times	7	14	6	27
	20.6%	18.7%	18.8%	19.1%
4 times or more	25	51	11	87
	73.5%	68.0%	34.4%	61.7%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

Table 10 Effectiveness of consultation process re content

Effectiveness of consultation process	top 25%	mid 50%	bottom 25%	Total
very effective	31	62	15	108
	91.2%	88.6%	71.4%	86.4%
satisfactory	3	8	6	17
	8.8%	11.4%	28.6%	13.6%
Total	34	70	21	125
	100.0%	100.0%	100.0%	100.0%

Note: 16 of the 17 providers who did not consult did not respond to this question.

All of the four case study programs drawn from the survey involved clients in planning, the extent and nature of consultations differing for each provider. Three programs involved clients at both the development and design phase, and all of them involved clients in the pre-testing and evaluation of the initial program.

The Recognition of Prior Learning case study was the most extensive in its consultations. The need for this program was identified through a survey of individual producers by the industry training board. This was followed up with negotiations with FarmBis to obtain funding, and then with individual providers, regional FarmBis coordinators and experts to develop the content and process for the program. On-going evaluation of the program allowed continuous improvement to ensure client's needs.

The Farm Safety course was developed through identification of member needs, largely based on feedback regarding existing courses. A new course was then developed using a process of consultation between government, training provider and the industry organisation. This course was continuously improved during the process of delivery.

While the development of the Challenge 2020 and the Grazing for Profit courses are both initiated by the deliverers, they each have a process for involving the client in program design. Challenge 2020 appoints a small group of industry representatives to 'steer' the development of new courses, and both use pre-testing and on-going feedback to mould their programs.

The majority of providers had a process for monitoring changing needs, with top ranked providers more likely to use structured processes (see Table 11).

Table 11 Monitoring changing needs

Monitoring changing needs	top 25%	mid 50%	bottom 25%	Total
structured process	21	30	2	53
	61.8%	40.0%	6.3%	37.6%
informally only	13	33	18	64
	38.2%	44.0%	56.3%	45.4%
not monitor needs		12	12	24
		16.0%	37.5%	17.0%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

Negotiation of relevant training pathways is an important part of the whole training negotiation process. All but 15 of the providers had a process for helping participants identify further training needs. Top ranked providers were most likely to provide information on other courses, assess skills and offer further training and give contacts for other providers (Table 12).

Table 12 Process for helping participants identify further training needs

Further needs identification process	top 25%	mid 50%	bottom 25%	Total
assess skills and offer further training	24	49	17	90
	70.5%	65.3%	53.1%	63.8%
information on other courses provided	31	43	12	86
	91.2%	57.3%	37.5%	61%
contacts to other providers	13	15	7	35
	38.3%	20.0%	2.2%	24.8%
map pathway to formal training	7	6	0	13
	20.5%	8.0%	0%	9.2%
other	0	3	0	3
	0%	4.0%	0%	2.1%
none	0	7	8	15
	0%	9.3%	25.0%	10.6%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100%

Factors that emerged as enhancing the effectiveness of collaborative arrangements were identified in the literature review. Attention to these factors in the process of collaboration should improve the outcomes of the planned and negotiated training. Some shared visions, values and trust among the partners enhances the collaborative process; partnerships with a vision that allows a mix of meeting the needs of individuals, the industry and government should be the most successful. An understanding by all partners of each others' cultures assists collaboration, for example, the cultural differences between education institutions and industry.

Providers with a good understanding of the culture of the other partners in the training negotiation process are more likely to be part of an effective process that results in a relevant training program. Sub criterion 2b, All understand culture of other partners: there is a common language and trust, measured this. Three survey questions were used for this sub criterion, Was it easy to understand each others' point of view?, Were the partners to the consultation the right people to be involved? and What enhanced or helped the relationship of the partnership in developing the program (answer-shared language or trust)? Whilst the majority of providers found it very easy to understand others' points of

view when consulting about the content (Table 13), and over 40% reported having a common or shared language, few mentioned trust (Table 14).

Table 13 Ease of understanding others' point of view in content consultation

Ease of understanding each others' point of view	top 25%	mid 50%	bottom 25%	Total
very easy	23	44	14	81
	67.7%	58.7%	43.8%	57.5%
easy	7	19	7	33
	20.6%	25.3%	21.9%	23.4%
OK	3	5	0	8
	8.8%	6.7%	0.0%	5.7%
No response	1	7	11	19
	2.9%	9.3%	34.4%	13.5%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

Table 14 Aspects of understanding culture of partners

Aspects of understanding culture of partners	top 25%	mid 50%	bottom 25%	Total
partners had a common language	19	34	5	58
	55.9%	45.3%	15.6%	41.1%
shared language enhanced partnership	12	22	6	40
	35.3%	29.3%	18.8%	28.4%
trust enhanced partnership	2	3		5
	5.9%	4.0%	0.0%	3.5%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

On reflection, a quarter of providers thought that the involvement of others would have improved the program development process, and so the program. There was no significant difference in response according to overall ranking (Table 15). Of those who would have liked others involved, nearly one third mentioned they would have liked input from industry bodies (in some cases in addition to industry organisations that were consulted), and one quarter mentioned other providers. The most common reasons for wanting others involved were to provide a wider range of resources and to better match client needs. This is consistent with the finding from the literature review that resources, or human infrastructure that includes enabling leadership and training brokers or coordinators, facilitate the operation of relationships.

Table 15 Others should have been involved in collaboration

Others should have been involved	top 25%	mid 50%	bottom 25%	Total
yes	10	17	10	37
	29.4%	22.7%	31.3%	26.2%
no	23	55	19	97
	67.6%	73.3%	59.4%	69.8%
unsure	1	3	3	7
	2.9%	4.0%	9.4%	5.0%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

It was evident from the case studies that all of the providers had strong relationships and linkages with their clients, their funders and the relevant industry organisations. Where these relationships and linkages were strongest the partners were most keen to continue to work together in the future – whether this be with the partners who developed the program, or the provider and their client partners.

Partnership models from the survey

The literature review found there were six models of collaborations in planning and developing training:

- Client-provider partnership
- Broker-client-provider partnership (brokers can be industry associations, community or government agencies or private individual or enterprise brokers)
- Researcher-industry-provider partnership
- Industry-provider partnerships
- Government-industry-provider partnerships
- Provider-provider partnership (and government)

These models can be applied to the program development processes described by providers when all the steps at which the survey captured information about the development of education and training programs are considered together. Inspection of the data showed that all those consulted in developing each of the programs were consulted in at least one of the stages of identifying needs, identifying learning objectives and choosing content. Clients were defined to be the target group when allocating the provider collaborations to the models.

Broker-client-provider partnership was the most common of the models found in the survey, describing 60% of all the partnerships or collaborative processes. Industry organisations were the most frequently observed type of broker. Table 16 shows that top ranked providers are the group most likely to be in broker-client-provider partnerships, government-industry provider partnerships and researcher-industry-provider partnerships. This is consistent with the literature review, which found that brokers or intermediaries play a key role in partnerships, including in forging a learning culture, and that industry or government bodies can facilitate interaction. None of the top ranked providers are in client-provider partnerships, a model which has only the target group and a single provider as partners. It should be noted that these results are to be expected: the ranking of providers worked so as to place those who collaborated widely in the top group.

Table 16 Occurrence of models of collaborations in planning and developing training

Model*	top 25%	mid 50%	bottom 25%	Total
client-provider (no other partners)	1	17	9	26
	0.0%	22.7%	28.1%	18.4%
broker-client-provider partnership	28	46	12	86
	82.4%	61.3%	37.5%	61.0%
broker-client-provider partnership; industry broker	*26*	*34*	*4*	*64*
	76.5%	*45.3%*	*12.5%*	*45.4%*
broker-client-provider partnership; government broker	*20*	*29*	*6*	*55*
	58.8%	*38.7%*	*18.8%*	*39.0%*
broker-client-provider partnership; other broker	*10*	*13*	*4*	*27*
	29.4%	*17.3%*	*12.5%*	*19.1%*
researcher-industry-provider	15	21	1	37
	44.1%	28.0%	3.1%	26.2%
industry-provider (no client)	6	9	2	17
	17.6%	12.0%	6.3%	12.1%
government-industry-provider	23	26	3	52
	67.6%	34.7%	9.4%	36.9%
provider-provider (may include others)	10	22	5	37
	32.4%	29.3%	15.6%	27.0%
Total	34	75	32	141
	100.00%	100.00%	100.00%	100.00%

*Note: some models overlap (e.g. researcher-industry-provider partnerships may also include clients and so be in the broker-client-provider partnership category). The target group were defined as clients when allocating the provider collaborations to the models.

The range of partnership types was evident in the case studies (Table 17). Although the survey indicated the client-provider model is less frequently associated with the top providers of client focused training, the case studies showed that this model can be successful (Grazing for Profit), particularly where the provider is in touch with client needs and responding to these for continuous improvement.

Table 17 Case study partnership types

Case study	Type of provider	Collaboration model
Tasmanian Board of Agricultural Education	Single-state industry organisation	broker-client-provider partnership; industry broker
Liz Alford	Single-state private provider	client-provider (no other partners)
Edge Network, Meat and Livestock Australia	Multi-state public funder	broker-client-provider partnership; industry broker
Grazing for Profit, Resource Consulting Services Pty Ltd	Multi-state private provider	client-provider (no other partners)
Recognition of Prior Learning, Southern Queensland Institute of TAFE	Single-state public provider	broker-client-provider partnership; industry broker
Responsible Rural Safety Management, AgForce Training	Single-state public provider	broker-client-provider partnership; industry broker
Challenge 2020, PIRSA Rural Solutions	Single-state public provider	researcher-industry-provider (for research workshops) and broker-client-provider partnership; government broker (PIRSA, for farmer or consultant nominated workshops)

In summary, providers who use a process that suggests they are successful in meeting industry or client needs (measured by being in the overall top ranked 25%) consult with a wide range of stakeholders in negotiating the learning objectives and content of training programs. A partnership model where providers work in partnership with the target group and brokers, who may be industry organisations or government agencies, is most likely to be effective. This model and process is facilitated by all partners having a good understanding of each others' culture. According to the literature review, such a broker-client-provider partnership resourced with people skilled in working across the producer-industry-education sectors cultural divide is likely to lead to successful education and training outcomes.

The role of partnerships and collaborations in meeting industry or client needs

This section discussed the role of partnerships and collaborations with a) other providers, and b) with other groups such as government and industry in meeting industry or client needs. The case studies and the literature review demonstrated the benefits that can arise from joint approaches to learning, and a range of ways in which a client focused approach to education and training can be achieved. There are many benefits from partnerships, some at the level of the training system, but many, more importantly are benefits for industry in the medium to long term. These benefits can be summarised as leading to a more innovative and competitive rural sector. Having effective opportunities and structures for interaction that are resourced, especially with people skilled at working collaboratively, lie at the heart of successful partnerships.

Partnerships and collaborations were a part of the program development process for all but two of the training providers surveyed. As shown in Table 1, industry organisations and government agencies were consulted in setting learning objectives by more than 40% of the providers surveyed, including over 60% of the top ranked providers. Other providers were consulted in setting learning objectives by 17.5% of the providers surveyed. In one third of cases, a group other than the provider was reported as having

the greatest input into the whole development process, most often this was an industry organisation or government agency (see Table 18). The target group was mentioned as contributing the most by only 6% of providers but was rated as participating in the development process by 46%.

Over 80% of the bottom ranked providers had the most input into the development process, compared to 55.6% of the top group (Table 19). Top ranked providers were those most likely to have industry organisations as the major contributor to program development.

Table 18 Rating of partners according to relative input into development process

Input group	Relative contribution to development process	number	% response
training provider itself	most	94	66.7
	2nd most	18	12.8
target group	most	8	5.7
	2nd most	28	19.9
industry organisations	most	16	11.3
	2nd most	18	12.8
government agencies	most	13	9.2
	2nd most	14	9.9
researchers	most	2	1.4
	2nd most	2	1.4
private brokers	most	2	1.4
	2nd most	7	5
other providers	most	3	2.1
	2nd most	11	7.8
technical experts	most	4	2.8
	2nd most	7	5
other	most	4	2.8
	2nd most	3	2.1
unsure	unsure of relative contributions	1	0.7

Table 19 Groups with highest relative contribution to development

Input group	top 25%	mid 50%	bottom 25%	Total
training provider	19	49	26	94
	55.9%	65.3%	81.3%	66.7%
industry organisations	6	9	1	16
	17.6%	12.0%	3.1%	11.3%
government agencies	3	7	3	13
	8.8%	9.3%	9.4%	9.2%
other providers	2	1		3
	5.9%	1.3%	0.0%	2.1%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

Eighty-four per cent planned to work with the same partners again, including all the top ranked providers and 96% of the middle ranked group. On reflection, around a quarter of the providers in all three ranked groups would have liked others to have been involved in the program development. A variety of stakeholders were mentioned; the highest number of mentions (12) was for industry organisations. Top and middle ranked providers were more likely to nominate groups whose input would have improved the program development process. Access to a wider range of resources (20) and improved match of training to needs (19) were given as reasons for wanting others involved in development.

A number of factors contribute to the success of partnerships and collaborations around training. Common goals was the most commonly cited factor enhancing the relationship (Table 20). A large proportion of top ranked providers cited every enhancing factor except for previous successful courses, which was cited by only a small number overall. Geographical considerations (21 mentions) and red tape (20 mentions) were the most common inhibiting factors in the partnerships and collaborations. There was no relationship between rank category and mention of inhibiting factors.

Table 20 Factors enhancing the relationship

Factor	top 25%	mid 50%	bottom 25%	Total
financial considerations	6	13	1	20
	17.6%	17.3%	3.1%	14.2%
common language	12	22	6	40
	35.3%	29.3%	18.8%	28.4%
common goals	29	51	13	93
	85.3%	68.0%	40.6%	66.0%
complementary resources	14	28	6	48
	41.2%	37.3%	18.8%	34.0%
good communication	19	26	6	51
	55.9%	34.7%	18.8%	36.2%
enthusiasm	11	19	7	37
	32.4%	25.3%	21.9%	26.2%
trust	2	3	0	5
	5.9%	4.0%	0.0%	3.5%
flexibility	1	2	0	3
	2.9%	2.7%	0.0%	2.1%
successful previous courses	0	2	1	3
	0.0%	2.7%	3.1%	2.1%
other	2	5	0	4
	5.9%	6.7%	0.0%	2.8%
Total	34	75	32	141
	100.0%	100.0%	100.0%	100.0%

Collaborations in the development of training programs are the norm for the providers surveyed. Partnerships and collaborations that include industry organisations and government agencies are a facilitating feature of the program development process.

The attributes or qualities of a learning system, which partnerships should work to develop and maintain, relate to norms and values, knowledge, skills in working together and interactional infrastructure. A rural industry training market that is a learning system characterised by on-going collective learning through collaborations and partnerships of providers, producers and other government and industry bodies should be the aim of all stakeholders. Brokers or intermediaries play a key role in forging a learning culture. Partnerships where industry is proactive in initiating and maintaining linkages and relationships tend to be the most successful. Industry organisations and government agencies appear to have most of the characteristics and resources required of effective, proactive and well-networked brokers.

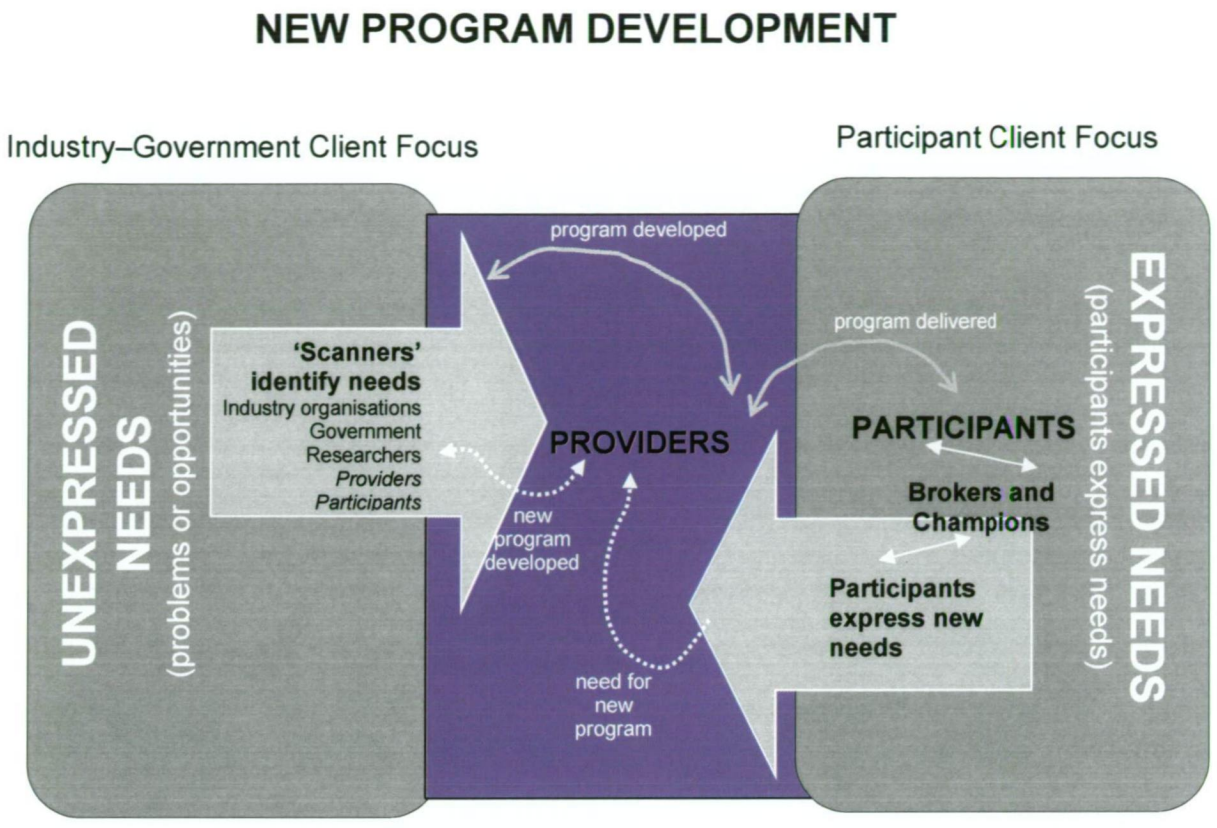
Implications of findings

There appear to be two drivers for the development of education and training programs. One is problems or opportunities identified by people and organisations that could be termed 'scanners', the other is learning needs expressed by individuals or enterprises who want to participate in learning activities (participants).

Scanners are typically industry organisations, government agencies and researchers, but may include providers and participants. Scanners identify learning needs that are not yet being expressed by potential participants, with the occasional exception of leading primary producers. Natural resource management is an example, where government identified a problem that could be addressed by training. The Challenge 2020 case study, for example, shows how researchers with expertise in the grains industry identify a learning need, and by working with Challenge 2020, can transform this into a practical workshop addressing client needs. In the case of the Recognition of Prior Learning, the scanner was the FarmBis coordinator, asking questions and gathering data about clients' interest in participating in such a program. Scanners work with providers to develop education and training programs to meet the identified need. They are clients for the new programs, participants are also clients, however the focus is on the need identified by the industry, and/or government and/or researcher; the programs have an industry-government client focus.

Expressed participant needs drive the development of other programs. Providers become aware of the need for a new or substantially revised program, for example as a result of feedback from an existing program, because of legislative change (for example, the GST) or from delivering a similar program in other industries or contexts (for example computer training). Brokers and 'champions' of training help participants identify and articulate their learning needs. Providers may consult with industry organisations, government agencies or other experts, but the programs are participant client focused.

Figure 3 New Program Development Model



There is a cyclic aspect to program development. A need originally identified by scanners typically eventually becomes an established program that may be modified by providers from time to time, but essentially cycles through participants and providers with little or no input from other stakeholders such as industry organisations. This was the case for Grazing for Profit, Challenge 2020, Recognition of Prior Learning, Responsible Rural Safety and Maelroan Computers. Providers who are able to be continuously scanning participant feedback are well placed to direct participants to other training opportunities (for example Maelroan Computers and Recognition of Prior Learning), or to identify new training opportunities (for example Challenge 2020 and Grazing for Profit). If the providers do not have a scanning role themselves, regular contact with scanners reduces the risk of isolation from new ideas with education and training implications.

Recommendations

1. How providers can develop education and training products which both meet the demands of industry and maximise the capabilities of the provider.

    1.1. Industry organisations and government agencies are significant players in determining the training that is provided. They, as well as the target participant group should have input into the learning activities that are offered to ensure that they are relevant to their identified needs. Providers should ensure they participate in formal consultation process with industry organisations, regional groups and government agencies, and work to ensure that their long term strategies include training.

    1.2. Providers should work in partnership with the target group and brokers, who may be industry organisations or government agencies, in order to most effectively provide client focused education and training.

1.3. Training products that are developed need to be flexible and be modified to incorporate the clients' context and use examples drawn from the clients' experience. This will ensure that training to make is really relevant, and goes beyond being aware of training needs to a deeper level of understanding of training needs.

1.4. Providers should take on the role of 'scanners' as per the model illustrated above in Figure1, scanning for new opportunities and problems that could be addressed by training.

1.5. Providers should use the criteria identified on page 4 as a checklist to see if they meet best practice criteria. Providers should pay particular attention to the seven sub-criteria:

- Process for monitoring changing needs (1c),
- Involve clients in planning (1d),
- Wide networks of providers, industry organisations, government agencies. technical expertise, researchers and/or community organisations, according to context (1e),
- Act on result of monitoring strategies (2f),
- Share resources (3c),
- Information on training pathways (4c), and
- Trainer standards (5a).

1.6. All providers, especially though who are accredited, should pay particular attention to criterion 1 of the five good practice criteria, which is not well covered by the accreditation quality assurance procedures.

2. How to maximise opportunities for education and training providers and client groups to learn together for continuous improvement in the delivery and uptake of learning opportunities.

2.1. All stakeholders (participants, providers, industry organisations, government agencies, researchers, funders and regional groups) should adopt a learning communities approach that builds and maintains relationships. The learning communities should have scanning strategies (Figure 3 above) that identify new opportunities and problems that could be addressed by training. The learning communities must have communication strategies that ensure relevant stakeholders are made aware of these new opportunities and problems. For example, industry organisations should be scouring their networks for future training needs. They, or other brokers in the learning community, must have channels to providers who can partner in the development of new training programs.

2.2. Industry organisations should actively seek out appropriate providers and funders and communicate the needs of those they represent. Providers should seek other providers to craft a wide choice of pathways to further training for their clients.

2.3. Networking opportunities for training providers, industry organizations and other stakeholders are the responsibility of all stakeholders. For example, industry organisations should invite providers and funders to their planning days.

2.4. An asset based approach to skills and training can contribute to a learning culture by valuing the skills and knowledge of clients/ the target groups. This builds self-confidence and engenders a learning culture that improves participation. Recognition of current competence is consistent with an asset-based approach. All stakeholder groups should promote the value of training from their own perspective at every opportunity.

2.5. Providers need to be proactive in developing their own skills and expertise in providing client focused education and training. Providers should ensure they are part of learning communities with other providers.

2.6. Training is part of a continuous cycle of improvement. There must be ongoing monitoring of needs and evaluation of the effectiveness of training outcomes. Action on the results of monitoring and evaluation is crucial. Sub criteria 1c, 1d, 1f, 2d, 2e, 2f, 4c, 4f, 4g, 5b, 5c form a checklist for continuous improvement (page 9).

2.7. Funders should consider best practice criteria in providing client-focused education and training when allocating funding.

2.8. Stakeholders in the provision of client-focused education and training need to develop self-sustaining networks that include providers, industry organisations, government agencies, funders, researchers and other interested stakeholders such as regional or community bodies.

3. Future research

3.1. The five good practice criteria need to be tested against the client outcomes from training – does following good practice as defined here lead to better outcomes for participants and other clients (ie. industries as a whole and government)?

3.2. Further research is need into how best to broker training, including the roles of industry and funders such as FarmBis.

3.3. Workshop participants identified actions they were going to take as a result of what they had learnt at the workshop. To maintain the momentum built by the project, as a mechanism for ongoing dialogue on the issues identified, and to assess adoption of the recommendations, a follow up workshop in approximately six months time is recommended.

List of Appendices

The appendices are listed here and available as separate documents.

1. **Literature Review**

2. **Report on Workshop held in October 2001**

3. **Provider Survey Report**

4. **Case Study Report**

5. **Report on Workshop held in July 2002**

NOTE: These appendices are **not** included with the thesis.

Paper 7:

A responsive training market: the role of brokers.

Kilpatrick, S., Fulton, A., Johns, S., and Weatherley, J. (2006). *A responsive training market: the role of brokers*. Cooperative Venture for Capacity Building, Rural Industries Research and Development Corporation Publication No 06/110, Canberra, Australia

This report is an outcome of a consultancy which lead directly from the findings of Paper 6, *Providing Client Focused Education and Training*. Again, A/Prof Sue Kilpatrick was the Project Manager and Principal Investigator. My role was as sub-contractor and joint Principal Investigator. We were again supported by a Project Officer, this time originally Jane Weatherley and then Susan Johns. Sue Kilpatrick and I contributed collaboratively to the project design, literature review, development of data collection tools, oversight of data collection (undertaken mainly by the project officer), stakeholder consultation and reporting (via steering committee meetings and workshops), data analysis (with Sue leading in the quantitative data analysis), case study reporting, development of recommendations, and to overseeing the content of the final report.

The purpose of the report included as Paper 7 was to explore the role of training brokers in the delivery of client focused education and training. A training broker was defined as a person or organisation who 'plays an active and purposeful role in identifying training needs. A training broker considers the whole suite of present and potential training opportunities and actively matches needs to training, acting in the best interests of the client.'

The need for the research was identified in the previous paper (Paper 6), which demonstrated the significant role brokers could play in matching the needs of family farm businesses to training and service provision – thus creating a responsive training market. The research analysed the features, processes and outcomes of a range of effective brokering practices in Australian rural industries.

This report is the last of the publications included for this thesis. It advocates for a shift in agricultural extension from a product-push model of training and service delivery to a needs-based model of matching services to the target audience. The first four papers clearly identified the complexity of family farm business needs. A deep understanding of these needs is essential to the delivery of relevant and useful training and services to family farm businesses. The brokering model provides a systematic process for ensuring these needs are understood and addressed, and that extension delivery is effective.

An Australian Government Initiative
CVCB
Researching Capacity Building in Rural Australia

A Responsive Training Market: The role of brokers

A report prepared for the Cooperative Venture for Capacity Building

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A responsive training market: The role of brokers
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Foreword

This study analyses the features, processes and outcomes of a range of effective broking practices in Australian rural industry, including, but not limited to, the activities of government agencies and industry organisations. It has the potential to bring about significant change in rural industry by identifying new ways to match needs to training and by providing step by step instructions on how to broker effectively. Findings from the study are timely given that a range of options for facilitating training needs to be explored, trialled and implemented prior to the likely cessation of FarmBis funding in 2008.

The study concludes that different broking models do not exist within different organisations, sectors and groups. Rather, all broking activity is underpinned by ten generic principles, and follows a three-stage development process. Different broking contexts call for flexibility in implementing the principles, and determining how much time is spent at each stage of the process.

To foster the development, expansion and sustainability of good broking practices, those involved in developing human resources within rural industry need to provide brokers with necessary skills and supports, and promote awareness and encourage implementation of good practice broking principles. Policymakers and industry bodies need to invest in brokerage, by ensuring the provision and continuity of realistic levels of resourcing.

This project was funded by the Cooperative Venture for Capacity Building in Rural Industries. The Cooperative Venture is managed by the Rural Industries Research and Development Corporation for the partners who are: The Department of Agriculture; Fisheries and Forestry; Australian Wool Innovation; Meat and Livestock Australia; Dairy Australia; Land and Water Australia; the Murray-Darling Basin Commission; the Grains Research and Development Corporation; the Sugar Research and Development Corporation; and the Grape and Wine Research and Development Corporation.

Publications from the Cooperative Venture are available for viewing, downloading or purchasing online through our website:

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Peter O'Brien
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The project would not have been possible without the 100 broking organisations that participated in the telephone survey, and the following six organisations that gave generously of their time to participate in case study interviews: Biodynamic Agriculture Australia; Department of Primary Industries; Water & Environment (Dairy Branch); Fitzroy Basin Association; Regional Skills Training Pty Ltd; Solly Business Services; and the Victorian Grains Industry Training Network.

We would also like to thank the participants in the three workshops for their input into the development of the guidebook, and for their valuable feedback during the analysis phase of the project.

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Acronyms

ANTA	Australian National Training Authority (ceased to exist after 30 June 2005)
APEN	Australasia Pacific Extension Network
AQTF	Australian Quality Training Framework
BAA	Biodynamic Agriculture Australia
CHRRUPP	Central Highlands Regional Resource Use Planning Project
CVCB	Cooperative Venture for Capacity Building
DAFF	Department of Agriculture, Fisheries and Forestry
DEST	Department of Education, Science and Training
DPIWE	Department of Primary Industries, Water and Environment (Tasmania)
FBA	Fitzroy Basin Association
NAP	National Action Plan for Salinity and Water Quality
NFP	Not-for-profit (organisation)
NHT	Natural Heritage Trust
NRM	Natural Resource Management
NTF	National Training Framework
NTIS	National Training Information Service
RIRDC	Rural Industries Research and Development Corporation
RST	Regional Skills Training Pty Ltd
RTO	Registered Training Organisation
VET	Vocational Education and Training
VGITN	Victorian Grains Industry Training Network

Glossary

Agribusiness	In this report, the term agribusiness has been used to describe those commercial organisations that derive their income from the provision of products and services to the rural sector (e.g. resellers and suppliers, seed companies, food processing companies, rural banks). It does not include training providers or private consultants, each of whom is discussed separately.
Broker	See training broker.
Broking	According to the *Macquarie Dictionary* this is the correct term to describe the process of negotiating training, or relating to the business of a training broker. The term has been used throughout this report, except when citing material from the North American and Canadian literature, where the term 'brokering' appears to be in more common usage. For the purposes of discussion in this report, the two terms are synonymous.
Client	Clients are recipients of services provided by others. In this report, two major groups of clients are identified and discussed: clients of training providers, and clients of training brokers. Clients may be individuals, or organisations (e.g. where a government department acts as a broker and commissions a rural consultant to develop and/or deliver training for a specified client target group, the target group is a client of the government organisation, and the government organisation and the client target group are both clients of the rural consultant).
Commercial organisation	Organisations that are required to make a profit in order to remain commercially viable. For these organisations, return on investment is critical. This group includes private consultants and private training providers.
Consultant	The term consultant is used in this report to refer to any private rural consultant, providing a range of advisory services to the rural sector. In most of the cases discussed in this report, the consultant also engages in the development and delivery of training as part of its core activities. These cases are clearly identified in the report.
Extension officer	A person employed either by a government or a private agency, to deliver a range of information, advice and education services to farmers in a planned and systematic way.
FarmBis	Funding by the Department of Agriculture, Fisheries and Forestry to provide subsidised training to the rural sector, in

	primary production business management, and natural resource management. FarmBis 3 began operating in 2005, although most references in this report are to earlier FarmBis programs.
Government organisation	As the name implies, these are funded by government (State/Territory, or Australian government, or jointly), and include departments responsible for Primary Industry, Education and Training, and Natural Resource Management. These organisations receive ongoing core funding for their activities.
Industry	Generic term used to describe agricultural sectors (e.g. grains industry, dairy industry etc.).
Industry association	Peak body responsible for improving production and marketing within own industry, as well as a range of other activities (advocacy, policy etc.) Most also play a key role in assessing education/training needs within their industry, and making provision for these needs to be met.
Learning culture	Creation of an environment in which learning/training is valued by all. Characteristics of a learning culture include identification of learning pathways for individuals/groups, development of learning networks, and empowering clients as active partners in the learning process.
Natural resource management	This term is used generically within the report to refer to issues and practices in relation to the management and sustainability of the country's natural resources. The report clearly specifies where natural resource management practices/training are specifically related to practice within rural industry.
Networks	Combination of formal and informal linkages and processes for communication with a range of individuals and organisation representatives.
Not-for-profit organisation	Refers to an organisation that is not commercially driven (i.e. is not required to make a profit in order to remain commercially viable), and that is not a government department/agency. This group includes farmer and NRM associations.
Other broker	This term is used to describe brokers that do not have a vested interest in training delivery (i.e. they are not training providers but independent, third party brokers). It is used specifically when comparing this group of brokers with training providers acting as brokers.
Participant	Unless otherwise stated, this term refers to a participant in an organised education/training program.

Private consultant	See consultant.
Program	Unless otherwise stated in the report, the term refers to a training course.
Provider	See training provider.
Research and development corporation	Industry-specific and generic bodies, often funded by farmer levies that fund research and development, and also facilitate some capacity-building activities.
Rural industry	This term is used to describe all rural industry sectors including commercial fishing and aquaculture.
Training broker	An individual or organisation matching needs to appropriate training. For the purposes of this report, the following definition is used: *A training broker plays an active and purposeful role in identifying training needs. A training broker considers the whole suite of present and potential training opportunities and actively matches needs to training, acting in the best interests of the client.*
Training provider	Unless otherwise noted, the term training provider is used broadly in this report. It refers both to Registered Training Organisations (RTOs), as well as to other individuals/organisations who are not RTOs but whose function is to provide some form of education and training to the rural and/or NRM sector.

Executive Summary

Background

Previous research by the Principal Investigators indicates the need for better matching of training needs and opportunities in the Australian rural training market, and identifies government agencies and industry organisations (such as farmer commodity groups, research and development corporations, and industry training advisory boards) as being well placed to broker training. This study analyses the features, processes and outcomes of a range of effective broking arrangements including, but not limited to, the activities of government agencies and industry organisations.

Brokerage is still a relatively new concept in training, so the study proposes a clear definition of the role, and analyses broking activity in relation to this definition:

> ***A training broker plays an active and purposeful role in identifying training needs. A training broker considers the whole suite of present and potential training opportunities and actively matches needs to training, acting in the best interests of the client.***

Brokerage is a collaborative process involving client, broker and provider, and may include a range of other stakeholders such as natural resource management/catchment groups, agribusiness, extension officers, farmer associations, and FarmBis networkers and coordinators, as well as primary producers themselves. This study is relevant to these groups, as well as to all individuals and organisations with an interest in increasing their responsiveness to client training needs.

This study on the process and outcomes of broking has the potential to bring about significant change in the rural training market. It identifies new ways to match needs to training for rural industry, and provides a detailed analysis of the principles and processes of brokerage. The accompanying manual, *Matching training needs and opportunities: A guidebook*, is a vital resource that takes brokers through the process step by step. Findings from the study are timely, given that a range of options for facilitating training needs to be explored, trialled and implemented prior to cessation of the current FarmBis program in 2008.

Objectives

The objectives of the study were to:

- Map existing training/learning broking arrangements in Australian primary industry.
- Investigate the outcomes for primary producers of these training/learning broking arrangements.
- Identify features of effective broking arrangements, and inhibitors to effective brokerage from the Australian primary industry experience, and from arrangements in other industries and overseas.
- Derive a series of models of effective broking arrangements that apply to learning activities for various sectors, groups and issues in primary industry (e.g. commodities such as grains, producers from non-English speaking backgrounds, natural resource management).
- Prepare case studies and a user-friendly manual that can be used to promote effective broking arrangements.

Method

Multi-method, multi-site techniques were employed to investigate effective training brokerage arrangements in rural Australia. Features of the methodology included collection of both quantitative (telephone survey) and qualitative (case study) data, as well as the involvement of stakeholders as partners in the research. The study intentionally focussed on good practice models of training brokerage. One of the limitations of the project is that it does not consider examples where brokerage has failed.

The purpose of the telephone survey was to identify existing broking arrangements in Australian primary industry by contacting approximately 100 organisations and agencies of the types that were found to assume the role of broker. Potential participants were identified using the investigators' extensive database of contacts. The sample was expanded using a snowballing technique. Data were analysed with the aid of SPSS computer software.

Six in-depth case studies of good broking practice were prepared. Data for the case studies were collected by interview. The purpose of the case studies was to identify and showcase models of good broking practice, and to encourage adoption of these practices. Subjects for the case studies were selected purposively from the examples of broking arrangements nominated by brokers during the telephone interviews. Potential case studies were identified to represent a variety of broking arrangements, and were not necessarily the most active brokers.

Stakeholder involvement was facilitated by the formation of a project Reference Group, presentation of three interactive stakeholder workshops to validate project findings and provide input into the development of the user-friendly manual, and by the presentation of case studies of good practice brokerage at workshops.

Key findings

Broking arrangements in Australian primary industry

Data were analysed for differences in broking arrangements according to activity, organisation type, location, industry and type of broker (training provider or other).

Cluster analysis revealed that broking activity occurred in three spheres: client activity, provider activity and other stakeholder (network contacts and network behaviour) activity. Only seven of the 98 organisations surveyed were in the most active category for all of these clusters, and so met the criteria of most active training brokers. They included a wide range of organizations: two state industry training bodies; one state farmer association; one commercial training provider; an agricultural college; one government primary industry department commodity section; and a university rural research and development centre that is not focussed on primary industry.

There were three major organisation classifications: not-for-profit (NFP), commercial and government agencies. Approximately half the sample was NFP organisations. There were indications of some variation in the nature of their broking practices. These differences related to how they informed their clients of training, client characteristics, the number of clients serviced annually, the size of the organisation and the focus of the training.

In terms of location and industry, the only statistically significant finding was that organisations in the 'not primary industry' sector (i.e. natural resource management) are less likely to be active in broking roles.

The findings suggested three broad arrangements for brokerage, based on whether or not the broker was also a training provider. These arrangements were categorised as: training providers using broking principles in their practice, training providers acting as brokers, and other brokers (i.e. those without a pecuniary interest in the brokerage). All three displayed a strong client focus. Although there were no significant differences, the study found that training providers involved in brokerage focussed more on the value of training to clients and on attracting repeat business, while other brokers had a broader industry-or community-development focus.

Outcomes of broking arrangements

Broking activity yields a range of economic and social benefits for individual participants, broking organisations, industries and the NRM sector, and rural communities. Key benefits include: accessibility; affordability; relevance and quality of training; cost effectiveness; growth potential for broking businesses; potential to reach a wider audience; good participation rates; continuity of service; industry/community ownership of the training; and the development of a training culture.

Features and inhibitors of brokerage

Specific enhancers were: a supportive environment (networks, organisational infrastructure, policy) underpinned by trust; resources (human and financial); and processes (communication processes, planning and development processes, and evaluation processes). Effective broking is underpinned by 10 generic principles: (1) is learner-centred; (2) has links to local networks; (3) encourages a learning culture; (4) has links to training providers; (5) maintains a continual awareness of training opportunities and gaps; (6) develops and maintains a wide network of stakeholders to identify emerging needs and awareness of other training opportunities; (7) actively matches needs to training; (8) assures the quality of the training provided as a result of brokerage; (9) has appropriate professional standards in place and complies with relevant legislation; (10) evaluates the brokerage process for credibility and quality assurance. The more effective the broker, the stronger their sense of purpose, the greater their understanding of their role, and the greater their understanding of how the broking process works.

Models of effective broking arrangements

The study concluded that different broking models did not exist within different organisations, sectors and groups. Rather, all broking activity is underpinned by ten generic principles, and follows a three-stage development process. The generic principles are identified in the previous paragraph. The stages are: getting started; matching needs and opportunities; and evaluating the broking process. Broking is compared to a lifecycle process, moving from a looser, informal structure in the first stage, to a more formalised structure in the later stages. While this process appears to be common to all effective brokers, different broking contexts call for flexibility in implementing the principles, and determine how much time is spent at each stage of the process.

Implications of this research

Benefits will flow from the research because it will facilitate client-focussed development of training that implies improved awareness by education and training providers. These providers will recognize opportunities for developing relevant, innovative learning programs, better mechanisms for producers to nominate needs, and better matching of learning needs with provision of learning activities. All Australian primary industries are potential beneficiaries of this research. Adoption of the recommendations will mean that producers and their industry organisations will have information to direct scarce funds in the most effective way, in matching learning needs with provision of activities. Training providers will be able to direct their resources toward the areas of demand. For policymakers, this research will provide an evidence-base for input into policy development on learning activities for natural resource management, and for supporting primary producer and land manager training activities following the end of the current FarmBis program in 2008.

Recommendations

Specific recommendations to foster the development, expansion and sustainability of good broking practices relate to skilling and supporting brokers, promoting awareness and encouraging implementation of good practice broking principles, and resourcing the implementation of good practice brokerage.

Provide brokers with necessary skills and support

Implementation of the following recommendations should be the responsibility of the Cooperative Venture for Capacity Building (CVCB), Rural Industries Research and Development Corporation (RIRDC), Australasia Pacific Extension Network (APEN), FarmBis, state and territory departments of primary industry, Registered Training Organisations, and others who provide courses to prepare people to work in extension, including universities.

R1: Disseminate the training brokers guidebook as widely as possible

R2: Provide workshops that will showcase models of good practice, equip stakeholders with skills in effective broking of learning activities for primary producers, and promote good practice in brokerage

R3: Develop communities of practice to provide opportunities for support and shared learning about brokerage and its potential for rural industry

R4: Add training brokerage to the curriculum of extension courses

Promote awareness and encourage implementation of good practice broking principles

Implementation of the following recommendations should be the responsibility of the CVCB, RIRDC, APEN, FarmBis, state and territory departments of primary industry, and Registered Training Organisations. Research and development organisations should also be responsible for implementation of R9.

R5: Each CVCB investor should explore the implications of this research specifically for their organisation, and develop implementation strategies for adopting the model of training brokerage into their standard business practices

R6: Refer to good practice principles and incorporate them into everyday practice

R7: Actively seek out brokers and develop networks with them

R8: FarmBis should encourage brokerage along with good practice

R9: Conduct more research into the role of private consultants and public/private training providers as brokers

Resourcing the implementation of good practice brokerage

Investment is about valuing brokerage and recognising it as a key part of being effective as an industry or regional body. Implementation of the first three recommendations should be the responsibility of policymakers and industry organisations. R13 is directed towards APEN.

R10: Policymakers and industry bodies to act upon the principles for fostering brokerage identified in this report

R11: Those who fund training need to make adequate provision for implementation of good practice principles

R12: Initiate, trial and implement broking models to create sustainable systems for facilitating training post-FarmBis

R13: Develop mechanisms for fostering communication and coordination among training brokers

- *(a) Institutional investors to support and facilitate coordination amongst training brokers by a website, forums to promote information exchange, and networking meetings*

- *(b) APEN to form a broking subcommittee.*

Chapter 1: Introduction

Background to the study

A project for the FarmBis section of Agriculture, Fisheries and Forestry Australia, completed in late 2002 (Kilpatrick et al. 2002a), identified two drivers for the development of education and training programs. The first relates to problems or opportunities identified by people and organisations that could be termed 'scanners'; the second involves the learning needs expressed by individuals or enterprises that want to participate in learning activities (participants). Since information flow in the training market is not perfect, providers of learning activities (education and training programs) are not necessarily aware of the identified problems and opportunities that require a training solution, and are not always aware of participant expressed needs. Further, potential participants are not always aware of available learning activities, nor are they necessarily skilled at articulating needs and negotiating with providers to customise programs to meet their needs.

Findings from a number of research projects conducted by the Centre for Research and Learning in Regional Australia (CRLRA) suggest that many clients in regional areas require help in matching their training needs to available training provision, or in negotiating training customised to their needs. This includes assistance with recognition of skills acquired through experiential learning. Equally, many providers cannot easily identify potential clients in regional areas. Training brokers play a key role in matching clients to appropriate training.

Although brokers have been an integral part of industries such as insurance for much of their history, they are a relatively new concept in the training industry. Kilpatrick and Bound (2001) noted that the evolution of training brokers can be traced to the marketisation of vocational education and training and to the purchaser–provider split, where government is no longer the sole source of funds and provider of services. Marketisation has meant a substantial increase in the number of training providers, both public and private. For clients, this has led to a confusing array of providers and modes of delivery.

Kilpatrick and Bound (2001) suggest there is an enormous range of brokerage models in the Australian training arena: they include private commercial organisations which may organise training for a particular group of clients; group training companies; and various industry based, not-for-profit organisations. To date, however, little research exists into the effectiveness of the varying training brokerage models.

Kilpatrick et al. (2002a) found that industry organisations (such as farmer commodity groups, research and development corporations, and industry training advisory boards) and government agencies can and do act as intermediaries or brokers, linking needs to training. The researchers suggested there is variation from industry sector to industry sector and even organisation to organisation in the level and nature of broking activity, but did not investigate the features of broking arrangements that make them more or less effective. Overall, Kilpatrick et al. found that brokers play a key role in forging a learning culture.

The purpose of this study is to begin to address the research gap on effective broking arrangements. The new FarmBis program (2005–2008) presents a timely opportunity to incorporate research findings from this project on effective interventions in the rural training market.

Objectives

The five objectives of this project are to:

- Map existing training/learning brokerage arrangements in Australian primary industry.
- Investigate the outcomes for primary producers of these training/learning brokerage arrangements.
- Identify features of effective broking arrangements and inhibitors to effective brokerage from the Australian primary industry experience, and from arrangements in other industries and overseas.
- Derive a series of models of effective broking arrangements that apply to learning activities for various sectors, groups and issues in primary industry (e.g. commodities such as grains, producers from non-English speaking backgrounds, natural resource management).
- Prepare case studies and a user-friendly manual that can be used to promote effective broking arrangements.

Defining what we mean by the term 'training broker'

While use of the term 'training broker' is gradually becoming more common, some of those involved in broking training are uncomfortable with the term, and there is some confusion about how the role of a training broker differs from that of others involved in the training process, such as training providers. Others question whether a broker has to be an independent third party whose sole role is to link participants to relevant training, or whether those involved in training provision can also undertake a broking role.

To cover the range of possible broking activities and roles, but at the same time clearly separate brokerage from other activities such as marketing or training provision, we propose the following definition:

> *A training broker plays an active and purposeful role in identifying training needs. A training broker considers the whole suite of present and potential training opportunities and actively matches needs to training, acting in the best interests of the client.*

Clients include individuals and organisations, generally small or medium in size.

The three key phrases in this definition are: 'active and purposeful'; 'whole suite of present and potential training opportunities'; and 'acting in the best interests of the client'.

Of course, a range of other people play an important role in helping to publicise and/or link people to training, although not all could be described as brokers. They fall into two categories:

1. People who disseminate information about training, provide a calendar of training events, or make general referrals to other training providers are not training brokers per se, because they do not *actively* match needs to training.

2. People who consider only a restricted suite of present and potential training opportunities are not full-service training brokers in the way that we have defined the term, because of this restricted focus.

A significant proportion of this second group is training providers. Many training providers actively identify training needs, and match them to training which they, the providers, then deliver. We argue that identifying needs and developing training to match is part of good practice for a training provider, but is not broking according to our definition.

Although the focus of this study is on training brokers, consideration is also given to training providers who use good practice that incorporates broking principles.

Structure of this report

Chapter 2 builds on the training brokerage literature review conducted for the 2002 report to the Department of Agriculture, Fisheries and Forestry (Kilpatrick et al. 2001), by identifying models, features and benefits of training brokerage, and reviewing how policy arrangements impact on the nature and level of training brokerage within the rural and natural resource management sectors in Australia. Chapter 3 details the multi-method project methodology, and results from the first phase of the project which mapped broking activity (telephone survey) are reported in Chapter 4. Chapters 5 to 10 present results from the second phase, in the form of six training broker case studies. Chapter 11 discusses these results in the light of the project objectives and the literature, while Chapter 12 focusses on the implications of this research and provides a range of recommendations for the various stakeholder groups.

Chapter 2: Review of the literature

Introduction

This literature review focusses on the differing perceptions of the concept of 'broker', and on broking arrangements within the rural training sector in Australia and overseas, as well as within other industries. Of particular interest is the way the broking role is positioned within the business activities of different organisations. Differing classifications of broking activity are then reviewed. The chapter continues with an overview of vocational education and training (VET) and other policies and practices that lay the foundations for, or directly support, training brokerage in Australian rural and natural resource management (NRM) sectors. Key processes, enhancers, inhibitors and challenges for developing effective broking partnerships are examined, followed by an overview of the benefits of broking training. The chapter concludes with a summary of the underpinning features of effective broking processes, and identification of issues requiring further attention from researchers and policymakers.

Background: Differing concepts of brokerage

There is evidence within the literature and within everyday usage, that the term 'broker' is now used so broadly across a number of sectors and areas of activity, that it can be used to describe any instance where one person links another to a product or service or other person. This muddying of the waters, as well as the less-than-ethical and well-publicised practices of a small number of brokers, has led to criticism and scepticism of brokerage in certain circles.

In today's rapidly expanding information society, a clear need has emerged for brokers, who have the skills and capacity to work across a number of areas where there is a need to ensure a match between knowledge and those who require it. Thus we read of 'learning brokers' working to link homeless and disenfranchised adolescents to appropriate educational opportunities (Midgley 2004); brokers working as intermediaries between the VET and education sectors in the design and development of competency-based training (Mulcahy 2000); and 'knowledge brokers' in key public service agencies such as health, whose role is to bring together those involved in the sometimes culturally and philosophically disparate fields of theory and practice (Canadian Health Services Research Foundation 2003).

Most definitions suggest that brokerage is an activity undertaken by an independent third party or intermediary, matching clients to appropriate services or products, without a vested interest in recommending any particular product or service (e.g. Kilpatrick & Bound 2001 re training brokers; Crombie 2002 re learning brokers). However, practice shows that not all brokers are independent—in such cases, however, they are ethically bound to disclose their interest upfront. Hemidy and Cerf (2001, cited in Kilpatrick et al. 2001), acknowledge that brokerage can be undertaken by those who are not completely independent, by describing the broker-like activities of French semi-private advisory centres, which have a dual role of providing some advice/training themselves, as well as referring clients to other learning sources. Another example is the brokerage undertaken by Wide Bay TAFE (Queensland), which uses local coordinators in a number of communities to better match learner

needs to identification, development and delivery of appropriate courses (K. Niblett, pers. comm., 15/5/05). This suggests there is a range of training brokerage arrangements in operation.

In general, brokerage is conducted by individuals or groups of individuals, usually face-to-face, but sometimes electronically. The literature also indicates use of the term 'educational broking' to describe how access to appropriate education/training resources is mediated by a tool such as the Internet. Some refer to this form of broking as distributed learning (see, for example, Senge 1990; Anido et al. 2002). This form of educational broking relies on the development of an information management framework that unifies and standardises the publication and location of leaning/training resources on the Internet, and assists learners to match their needs to appropriate learning resources. In this case, the broker is not an individual or organisation, as in the earlier examples cited.

Despite differences in the objectives and/or methods of brokerage, what most examples have in common is their focus on bringing individuals and groups together and developing relationships, to 'communicate and understand each other's needs and abilities ... [and] exchange information and work together ... ' (Canadian Health Services Research Foundation 2003, p. i). In most instances, brokers are doing much more than linking people to information—they are attempting to find common ground between individuals and groups with different ways of thinking and working, between different cultures and contexts. In many instances they are also acting as advocates for their clients. The key elements of brokerage defined in this way, as opposed to its more general usage outlined earlier in this section, are the ongoing relationship between broker and client, and the role of the broker as a 'boundary crosser' (Peirce & Johnson 1997). In this sense, the sort of education/training brokers that are the focus of our current research, are very much agents of change, rather than just providers of a service.

Training brokers

With the increased complexity of the National Training Framework (NTF) within Australia, and an increasing array of training and extension opportunities available, the literature indicates that training developers, deliverers and participants need a better understanding of the system, of how people can be better linked to appropriate, accredited courses, and of how best to match needs to training (Coutts et al. 2005; Andrew et al. 2005; Gientzotis Consulting 2003; Crombie 2002). This suggests the need for brokerage, which might be undertaken by a range of individuals and different organisations

Drawing on the definitions of brokerage provided earlier, and on findings from the Department of Agriculture, Fisheries and Forestry (Kilpatrick et al. 2002a), it is possible to identify some specific areas of knowledge and activity that characterise the role of training brokers. These include: an understanding of training needs and learner requirements; the development of extensive networks; and skills in coordinating training delivery through the generation of long-term partnerships with clients and other stakeholders.

Registered Training Organisations as brokers
Within the last three years or so, the increasing role of registered training organisations (RTOs) as brokers has been identified in the literature (e.g. Gientzotis Consulting 2003), and is evident in practice. Gientzotis Consulting (2003) identified a range of broking or intermediary services offered by RTOs to their clients (in this case, clients were enterprises rather than individual learners). These included the provision of human resource support to enterprises as they identify relevant training for their employees, administrative management of the training process, and assistance with overall navigation of the VET system. These roles are in addition to the delivery of training.

The research identifies a further broking role of RTOs in 'facilitating partnerships and strategic alliances between government, enterprise, community and/or training providers and linking training opportunities and available funding support to a specific community need. In addition, there are some emerging roles for RTOs as industry, enterprise and community enablers and as brokers and consultants in human resource management' (Gientzotis Consulting 2003, pp. 1–2). These emerging roles of RTOs, and of others who undertake brokerage, are of particular significance to the current project. Another key finding from Gientzotis Consulting (2003) is the positive link between the attributes of RTOs as brokers and high performing RTOs.

Models of training brokerage

Examples of organisations that identify themselves as 'training brokers' as their core activity are small in number, but increasing. Most of those identified in the Internet search were based in the United States. In terms of training brokers working specifically with primary industry, there were no websites found, but there is a small body of research into rural training brokers in the literature. The Internet search identified examples of training brokers working in areas likely to be of relevance to the rural sector, including corporate management training, organisational learning and information technology (IT). The material contained in this section therefore reviews training brokerage models in general, including literature on rural training brokerage models as appropriate.

Brokerage as a three-way partnership

Kilpatrick et al. (2002a) identified a partnership model of effective brokerage for the rural sector, which includes three key stakeholders: client, provider and broker. Acting as a learning community, all partners in the process have responsibility for scanning for new opportunities or problems requiring a training solution. The researchers found that effective broking partnerships involved brokers and the target client group in identifying and articulating learning needs, and that brokers actively sought out providers to articulate the training needs of clients/members, including the use of formal consultation processes.

Characteristics of different broker organisations

Kilpatrick et al. (2002a) identified two particular types of organisations as having the characteristics required of effective brokers in rural industry: industry organisations and government agencies. Both organisations have the ability to facilitate interaction amongst partners by drawing on their extensive networks. Galston and Baehler (1995, cited in Kilpatrick & Bound 2001) also identified industry associations as hubs for the exchange of information and provision of services. In particular, they have a

mediating role, facilitating cooperation amongst producers and others. Specifically, Kilpatrick et al. (2002a) concluded that 'partnerships where industry [as a broker] is proactive in initiating and maintaining linkages and relationships tend to be the most successful' (p. v).

The broking role of a national industry organisation is further explored in Miller's (2001) paper, although this does not have a rural focus. Miller's research explored brokerage of school-to-work transition initiatives, with the aim of improving learning and career opportunities for young people. He identified two necessary key players in the broking process: local school-to-work intermediaries, which operate in a horizontal sphere within a specific geographical area; and national industry associations, which operate vertically by promoting connections within a single industry or groups of industries across the country.

Miller (2001) encouraged greater collaboration between local intermediaries and national industry associations in order to increase benefits for individuals, communities and industries, and suggested the process is underpinned by a recognition of what each party can bring to the partnership. Local intermediaries have access to local employers and community leaders, local knowledge, and provide a local voice for advocacy. National industry organisations have respected credentials, resources to develop quality materials and programming, broad dissemination networks, and can provide state and national level advocacy to influence policymaking. In particular, national industry associations 'can help local intermediaries avoid costs in reinventing wheels' (Miller 2001, p. 12) because of the resources at their disposal to fund research and evaluation, and to facilitate better communication and information exchange. Importantly, one of Miller's key recommendations was the need for state organisations to form the link between national and local intermediaries, where national bodies provide resources, and local bodies ensure implementation.

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The second major group of brokers identified by Kilpatrick and Bound (2001) is government agencies. The researchers found the rural development role of relevant government agencies places them in an ideal position to broker training, as they engage with communities in building networks, facilitating access to resources, and fostering learning. Specifically, Kilpatrick and Bound identified the ability of government agencies to build the conditions that allow groups and organisations to collaborate, in a coordinated approach to delivering activities that meet the training needs of clients and employees.

Research (Kilpatrick et al. 1999) identifies a third group: commodity-based farmer organisations that also have the potential to act as important sources of learning and support in the implementation of new rural practices. Less information is available about the specific characteristics of this group that support their broking role.

A rapidly growing but under-researched group which has the potential to significantly impact on the development of capacity within the rural and NRM sectors, is agribusiness (Stone 2005). Agribusiness in Stone's study is define broadly to include all individuals/organisations that generate 'income from the sale of a product or service or both, which facilitates the decision making of a farmer or land manager' (p. vii). Stone includes training providers and consultants in this group. Although not

specifically advocating a training brokerage role for agribusiness, Stone emphasises the value that innovative farmers place on consultants as 'honest brokers', in terms of consolidating information and providing independent advice, and suggests that this role is and will increasingly continue to be undertaken by most forms of agribusiness (but not including resellers).

Purpose or source of impetus of the broker

Brokers can be classified according to their drivers, with two broad classifications identified in the literature: firstly, market-focussed and client-focussed (Kilpatrick & Bound 2001); and secondly, Gientzotis Consulting's (2003) enterprise and industry demand, community demand, and government policy and legislative requirements models. It should be noted that Kilpatrick and Bound's classifications refer to all rural broking arrangements, whereas Gientzotis Consulting is referring specifically to RTOs as brokers, although it is suggested they have broader applicability.

Market-focussed and client-focussed broking

As the name implies, market-focussed brokers are commercial operations, for whom brokerage is a core business. They are driven primarily by financial viability and competitiveness, or the requirement to cover costs (e.g. group training companies). Kilpatrick and Bound (2001) found that market-focussed brokers had a more pragmatic orientation in building relationships with stakeholders, motivated by the need to maintain and develop market share. The focus of these brokers was more on delivering the training requested, than on empowering the learning processes of clients. A search of Internet sites indicates market-focussed training brokers are on the increase (a number were established within the last 5–7 years). Some advertise themselves as an extension of the client organisation's human resources department, to help match employees to training (for example, Business Training Partnership; The Training Broker).

Market-focussed brokers (e.g. GWA; The Training Broker) have a strong customer service focus, and use multiple marketing strategies to secure new clients. These include testimonials from previous satisfied clients, guarantees that they only work with the best training providers in the field (e.g. The Training Broker), and a focus on the cost-effectiveness of their service (e.g. Spectrum). Customer satisfaction and securing repeat business are key features of this model. In addition, Kilpatrick and Bound found that market-focussed brokers were more formal or hierarchical in their relations (e.g. providers were expected to make contact with clients through the broker rather than directly), and that they were more likely to have strong ties with a smaller number of providers. Although this built trust between broker and provider, it also created a relationship of dependency on their providers. Kilpatrick and Bound also found that while clients developed a supportive relationship with the broker and valued this service, the relationship tended to encourage dependency of the client on the broker.

By comparison, client-focussed brokers comprise a diverse range of groups and organisations with a variety of purposes and roles. As such, client-focussed brokers are not an identifiable model in the sense of market-focussed brokers, but more a loose grouping of brokers with a client-driven rather than commercially-driven motivation. Kilpatrick and Bound (2001) described the key driver of this group as capacity building of the target client group, focussing on the process of arriving at the

end result (creating lifelong learners), rather than just the end result itself (acquisition of skills). Included in the grouping are small and large organisations, and not-for-profit as well as government agencies. Although not commercially driven, the activities of many of these organisations are funded through external sources, including government grants and philanthropic sources. They have a high level of accountability for this funding, in terms of ensuring that predetermined client outcomes are met.

Kilpatrick and Bound (2001) found that client-focussed brokers emphasised cooperation and collaboration, and were more likely to display a learning and nurturing orientation, by encouraging and facilitating direct contact between provider and client. In contrast to market-focussed brokers, the researchers also found that customer-focussed brokers had a non-hierarchical arrangement with the parties, facilitating the sharing of information and resources amongst all parties. There were also indications that these brokers had access to a much larger number and variety of providers, because of their broader community networks.

Enterprise and industry demand, community demand, and government policy and legislative requirements

Gientzotis Consulting (2003) briefly described the characteristics of the three types of intermediary or broking services offered by RTOs, in terms of the impetus for development. They cited overseas research that found the three types of service are not mutually exclusive.

The first model describes broking services established in response to enterprise and industry demand, and comprises strategic partnerships and resource sharing. The researchers found that the second model, brokerage driven by community demand, was characterised by a focus on access and equity issues, and in rural and remote areas in particular; also on employment and skills development, which are both critical to community wellbeing.

The third broking model identified by Gientzotis Consulting (2003) has been brought about due to a range of policy and legislative requirements. Drivers for this model include the implementation of a range of changes in the VET system in recent years, such as User Choice and the New Apprenticeships system. Because of the increase in the number of training providers under User Choice, and changed requirements under the New Apprenticeships system, a clear need has arisen for intermediaries (or brokers) to explain and help clients negotiate these changes. The broader issue of policy as a facilitator of training brokerage is addressed in a later section 'Facilitation of partnerships in training'.

Scope of broking activities

A scan of the Internet suggests that another way of classifying training brokerage arrangements is by scope: one-off project-based brokerage, and ongoing brokerage. In reality, there is probably a third grouping that falls somewhere between the two, where organisations continue to access limited project funding that allows them to broker in an ongoing manner.

The scope of broking activities is largely (but not solely) linked to funding availability. For example, in recent years the Australian government has initiated several VET programs designed to upskill targeted groups within society, such as *Basic IT Enabling Skills for Older Workers* (Department of Education, Science and Training 2002) and *Vocational Education and Training Priority Places* (Department of Education, Science and Training 2004). Both programs are examples of project-based brokerage, characterised by specified, limited-term appointments of training brokers who were also project managers, and clearly defined roles and contractual responsibilities in terms of delivery of outcomes within a specified time frame.

Ongoing training brokerage may be funded from a variety of sources. The model most commonly identified in the literature and Internet search was the commission model, where training providers paid a commission to brokers for each successful client match (e.g. Business Training Partnership; Firstbase Professional Development Solutions; GWA; My Training Broker). This is also the model most commonly associated with other forms of brokerage, such as insurance and finance brokerage.

Research suggests ongoing brokerage may be funded from a range of other sources, including industry associations and government (e.g. in the form of group training companies), or may be undertaken as part of an organisation's core funding. Research by Gientzotis Consulting (2003) found that where RTOs were offering broking or intermediary services, they did not always charge clients for provision of the service, although there is a growing trend to derive additional income from these intermediary services.

Policy arrangements supporting training brokerage in Australia

At the centre of vocational education and training reform in Australia is the policy document *Shaping our future: Australia's national strategy for vocational education and training 2004-2010* (Australian National Training Authority 2003). This document marks a reorientation of VET in terms of accommodating the interests of a range of stakeholders in training, focussing on the broader role of VET in creating a cohesive society by developing community social capital, and fostering collaboration rather than competition (Wheelan 2003). Specifically, the document identifies four groups of key players: industry; training providers; clients; and training brokers and facilitators, who are the 'intermediaries between vocational education and training and employment ... [m]any training providers also have a brokerage arm' (Australian National Training Authority 2003, p. 3).

The policy is underpinned by the development of a client-driven culture and a strong market of training providers, which provide greater client choice. A range of strategies is outlined in the policy document that fosters broking arrangements:

- assisting clients as they navigate and interact with vocational education and training
- investing in RTOs to ensure they have the capacity, skills and infrastructure to provide high quality, client-focussed services
- enabling training providers and brokers to partner with industry
- strengthening the role of industry in identifying skill needs and developing products and services to meet those needs

- providing flexible and sustainable funding models for training, and
- making learning pathways seamless through encouraging partnership between education and training institutions and a range of other sectors, such as regional development and community services.

Policy direction is influenced by a variety of sources including the Bureau of Rural Sciences, which has responsibility for providing advice on issues related to profitable and sustainable Australian industries. This includes advice on capacity building and integrated natural resource management planning. A Bureau report by Aslin et al. (2002) identified a number of key skills needed to assist NRM groups to effectively participate in planning, such as the ability to analyse and synthesise information from a wide range of sources, and to know where and whom to contact for relevant information. Specifically, they identified a role that could be filled by intermediaries (or brokers)—that is, the need for coordinators to help identify skill needs and match them to appropriate training—and provided a number of recommendations which closely aligned with a training brokerage model.

The Australian government also facilitates the exchange of information on training through the National Training Information Service (NTIS), a web-based searchable database of information on VET courses, qualifications, Training Packages, competency standards and training organisations (Department of Education, Science and Training 2005). Given that training brokerage is about linking people to the best training to meet their needs, a service such as that provided by NTIS would seem to be a key broking tool.

In addition to the overarching VET policy document and NTIS framework, a scan of the literature and Internet revealed there are other policy areas that support some of the underlying principles of training brokerage, such as the development of networks and communities of practice to encourage collaboration for the benefit of learners, although few support the actual practice of training brokerage per se. These policies and initiatives are examined in the following sections: facilitation of partnerships in training; identifying skill needs and supporting skill acquisition for rural Australia; industry policy; and the role of research and development corporations.

Facilitation of partnerships in training

The implementation of the National Training Framework (NTF) within the Australian vocational education and training system has been designed to encourage the development of relationships between RTOs and industry. Additionally, the advent of Training Packages requires closer alignment of training and assessment to industry outcomes (Gientzotis Consulting 2003). Both strategies have the potential to foster better linkages between industry and providers to ensure training is targeted to identified needs. Research has identified the involvement of industry as essential to the training brokerage process (Kilpatrick et al. 2002a).

An environment of collaboration between providers is encouraged by the Australian Quality Training Framework Standards for Registered Training Organisations (Australian National Training Authority 2005). Standard 1.6 allows for the development of partnerships with another provider of education and training, with the main benefit being that it enables those organisations that are not RTOs, to partner with an RTO as a way to accredit their training. The RTO involved is required to take

the lead in managing the partnership, to ensure the quality of training and assessment delivered is to standard.

These arrangements have the potential to foster brokerage because they:

- promote collaboration on meeting training needs
- enable organisations to benefit from RTO status without having to become one, and
- promote high standards of training delivery.

Identifying skill needs and supporting skill acquisition for rural Australia

National coordination and delivery of training in rural and regional Australia
A range of government departments has responsibility for facilitating capacity building in rural and regional Australia, including the departments of Agriculture Fisheries and Forestry, Transport and Regional Services, and Environment and Heritage.

As part of the Australian government's rural policy and innovation strategy Agriculture Advancing Australia, the Department of Agriculture, Fisheries and Forestry, along with relevant state/territory government departments, funds FarmBis (Department of Agriculture, Fisheries and Forestry 2005a). This program reflects a national approach to creating a responsive training market by resourcing and supporting training brokerage activity, as well as subsidising the cost of training. Eligibility and rates of subsidies are determined on a state by state basis.

FarmBis supports training brokerage by:

- encouraging participation in training and fostering a training culture amongst primary producers
- providing incentives to develop programs
- stimulating training businesses
- promoting the development of training courses in the areas of primary production business management, and
- encouraging the development of clients and understanding of needs.

The new round of FarmBis funding announced in early 2005 includes some proposed key changes from earlier rounds, which are likely to further support training brokerage. These proposed changes include an improved FarmBis website with a searchable database of learning activities and providers, and the introduction of targeted industry initiatives, to implement industry-led responses to learning needs (FarmBis Queensland 2005).

Consistent with the role of brokerage, the long-term aim of FarmBis is to 'leave a legacy of a learning system that is constantly evaluating and revising its activities and is responsive to internal and external stimuli' (Kilpatrick et al. 2001, p. 2). This builds on research into on-farm implementation of education and training outcomes from FarmBis courses (Participative Technologies Pty Ltd 2002), which identified the critical importance of FarmBis coordinators (brokers), providers and industry working

together to develop strategies and a culture to encourage and support continuous learning. At the same time, concerns about a culture of dependency created by subsidised training and the post-FarmBis impacts of this, have been expressed by a number of stakeholders in rural and NRM training (G. Godwin Smith, pers. comm., 15/5/05). These concerns need to be addressed before the current cycle of FarmBis funding finishes.

The Agriculture Advancing Australia package also includes the Industry Partnerships Program (Department of Agriculture, Fisheries and Forestry 2005b). Designed to build capacity within agriculture, fisheries and forestry industries, the Program works with industries to:

- highlight the industry's successes and build on its strengths
- improve the industry's ability to identify and respond appropriately to threats and risks
- ensure key stakeholders throughout the supply chain and in supporting services contribute to the industry's vision and directions, and
- develop skills and structures to improve industry and organisational capacity.

The focus on identifying and responding to threats and risks is consistent with the underlying aim of training brokerage: to better identify and match needs to training.

The Department of Transport and Regional Services (2005) funds the operation of Area Consultative Committees located across Australia in rural, regional, remote and metropolitan communities. These non-profit, community-based organisations have the potential to foster training brokerage by facilitating a partnership approach to identifying and meeting local training needs. With membership comprising key regional stakeholders, Area Consultative Committees are well placed to build networks and partnerships to find local solutions to local problems, by bringing together key business, regional and community representatives to identify priorities and opportunities, and develop and implement a three-year strategic plan for regional development.

In terms of industry support for a more responsive rural and regional training market, the recently formed Agri-food Skills Council (Rural Training Council of Australia 2004) replaces the Rural Training Council of Australia. The new Council represents the interests of almost 140 000 businesses, with more than half a million employees, in farming and grazing, including the meat and seafood industries, food and beverage processing, racing, and bloodstock exports. It is part of a growing network of skills councils being formed by the Australian government to create new communication channels between industry and the VET sector, to boost forward planning for the nation's skill needs. The Agri-food Skills Council will not deliver training, but will be in a strong position to facilitate brokerage, because of its role in assisting industries, enterprises, and their workforce to integrate skill development with business goals, and in supporting high quality, nationally recognised training products and services. As noted earlier in this review, the role of industry at all levels is integral to effective training brokerage (Kilpatrick et al. 2002a).

National coordination and delivery of NRM activity and training
A partnership approach between the Australian government and relevant State and Territory governments for investing in natural resource management fosters national coordination and delivery of integrated natural resource management activities. It includes the development of regional integrated natural resource management plans that are jointly accredited by the Australian and relevant state/territory governments, and funded through the Natural Heritage Trust (NHT) and National Action Plan for Salinity and Water Quality (NAP) programs (Department of Agriculture, Fisheries and Forestry 2005c). Funding is provided through the programs for facilitators and coordinators, and for a range of activities to promote sustainable resource management. These include capacity building of rural communities and industries to understand, identify and apply improved natural resource management practices, and application of results of research to improve industry sustainable resource management. The partnership approach to NRM fostered by these programs, in terms of actively linking communities, industry and government to determine local solutions to local issues, has the potential to provide a solid foundation for broking education and training solutions appropriate to local contexts.

Related to the NAP and NHT initiatives is the National Landcare Program, delivered through Natural Heritage Trust in individual states (Department of Agriculture, Fisheries and Forestry 2005d). The program funds community support activities designed to build capacity at the local level, including improving the skills of NRM managers, promoting best management practice, and better integration of natural resource management into business and property plans. There is also a national component which includes sustainable industry initiatives (Department of Agriculture, Fisheries and Forestry 2005e). It encourages a partnership approach between industry groups, research and development organisations, and the Australian government in identifying and equipping farmers with the knowledge and skills required to act/manage sustainably, and in promoting excellence and innovative approaches to extension and communication. The focus of both the community support and national components of the National Landcare Program have potential to support training brokerage in NRM by linking relevant parties together to plan, develop and deliver initiatives that are locally relevant and appropriate, and based on the latest information and research into natural resource management.

Of particular relevance to the current project is the National Knowledge Broking for Regional NRM initiative, which aims to build stronger connections between research/information providers and NRM planning, implementation and evaluation (Land & Water Australia 2005a). The project will explore a variety of strategies and mechanisms to facilitate knowledge connections, including a national 'first stop shop', coordinating meetings between community, research and policy practitioners, and understanding and overcoming barriers to knowledge exchange.

Industry policy

As well as a range of government policies and programs that provide resources and support for some level of broking activity, there are examples of policy and strategic documents from industry that support a partnership approach to the identification and coordination of industry needs with appropriate education and training for members. However, they do not specifically target broking activities for funding. For example, Dairy Australia (2005) cites supporting strategies for building industry capability as

'coordinating and supporting industry efforts to meet current and projected needs' and 'developing and facilitating industry knowledge management, strategy development and scenario planning' (p. 38). In addition, it identifies how it will enhance its own performance and delivery through 'leveraging resources through cooperation, partnerships and infrastructure alignment' (p. 39), which fits neatly with the underlying partnership principle of training brokerage. Grain Growers Australia (2005), in drafting a new blueprint for the future, specifically identifies its role in relation to capacity building as 'being a facilitator, rather than being involved in building programs and/or delivering programs' (p. 12). In addition, a number of industry planning documents targeted the development of stronger linkages with research and development organisations as a key priority, to better identify emerging trends and develop industry capacity.

The role of research and development corporations

Initiatives such as the formation of the Cooperative Venture for Capacity Building (2004) for Innovation in Rural Industries, as part of the Rural Industries Research and Development Corporation's Human Capital, Communications and Information Systems sub-program, place the spotlight firmly on developing effective, accessible, client-centred information, and communication and education systems and processes (Rural Industries Research and Development Corporation 2005). Specifically, it emphasises the role of research and development in ensuring an effective rural industries' research, education and extension system. One of its key target areas is to develop strategies for creating inter- and intra-organisational arrangements to support learning and change. Collaborative efforts such as this would seem to underpin training brokerage. The Cooperative Venture for Capacity Building itself, comprising multiple partners from different sectors, embodies a collaborative approach to continuous capacity building and a forum for members and stakeholders to learn from and assist each other.

Industry-specific research and development corporations variously address the role of research in ensuring training is developed to meet industry and individual needs. For example, the Grape and Wine Research and Development Corporation (n.d.) identifies that the sorts of projects to be commissioned will address industry priorities and that the adoption of industry research and development initiatives will be facilitated by regional networks. In another example, the Sugar Research and Development Corporation (2005) broadly identifies a key outcome of its program as enhancement of human capacity and partnerships between industry, research and regional communities, in order to underpin change, learning and innovation, laying the ground for training brokerage activities within its industry.

Developing effective broking partnerships

Training brokerage is a partnership between key stakeholders. At the core of the partnership are clients, providers and brokers. Little research exists on the features contributing to effective brokerage, although Kilpatrick and Bound (2001) identify some features of effective rural training brokerage arrangements, and Greer and Scudds (2004) offer a range of successful case studies of training brokerage in indigenous communities. This lack of information on the process of developing and sustaining effective brokerage is of concern, because 'broking occurs even without individuals dedicated solely to broking, so it's important to focus on the activities and processes ...' (Canadian Health Services Research Foundation 2003, p. i). Its call for

the development and sharing of good practice broking cases within the Canadian health sector would seem to reflect a similar need within the education and training sector in Australia and overseas.

In the meantime, the body of broader research on the development of partnerships provides some useful background to the current study.

Processes

Research (e.g. Lane & Dorfman 1997; Henton, Melville & Walesh 1997; Kilpatrick et al. 2002b; Falk & Smith 2003) conceptualises partnership development in terms of a lifecycle, moving from a looser, informal structure in the earlier stages to a more formalised structure in the later planning and delivery stages. Building on the work of Kilpatrick et al. 2002b, Johns (2004) identified five stages in the partnership lifecycle: initiation; development; maintenance; critical reflection; and sustainability. A key outcome of the critical reflection stage is consolidation of partnership identity and heightened awareness of partnership impacts. While all partnerships progress through these stages of development, research indicates that they differ in terms of the scope, timing and success of each stage (Henton, Melville & Walesh 1997; Kilpatrick et al. 2002b), and that the level of maturity of the partnership is one of the key factors influencing the extent and rate of partnership development (Kilpatrick et al. 2002b). The most effective partnerships, in terms of delivering outcomes and ensuring sustainability, are those with a capacity to recognise the stage they have reached in the partnership lifecycle (Shortell et al. 2002), and which place importance on the critical reflection (Johns 2004) and sustainability (Kilpatrick et al. 2002b; Johns 2004) stages. This includes recognition and celebration of partnership successes, and the formal process of evaluating partnership goals and processes, and scanning the horizon for new opportunities and threats.

Enhancers

Research in education and training (e.g. Kilpatrick et al. 2002b; Falk & Smith 2003; Johns 2004), and health (e.g. Shortell et al. 2002; Canadian Health Services Research Foundation 2003) identifies some of the attributes and conditions necessary for developing and sustaining effective partnerships. These include the importance of shared norms and values; development of and commitment to a shared vision; trusting relationships and social support in the learning process; skills in working together and with others; and appropriate interactional infrastructure. These attributes have also been found to underpin training brokerage partnerships (e.g. Kilpatrick & Bound 2001; Greer & Scudds 2004 re training brokerage in indigenous communities).

Mutual trust is identified as a critical element of partnerships in general, and of broking partnerships in particular, with trust between client–broker–provider identified as a key attribute of effective brokerage across the range of broking industries and contexts (e.g. Pettersen 2005 re insurance brokerage; Greer & Scudds 2004 re training brokerage in indigenous communities; Canadian Health Services Research Foundation 2004 re knowledge broking in the health sector; Crombie 2002 re learning brokers in the NRM and rural production sectors). The Canadian Health Services Research Foundation (2004) expands on the issue of trust, highlighting the importance of brokers needing to trust, 'because broking will only really be able to function ... if there is a true network of brokers reaching out, sharing information, and offering tips on best practices' (pp. 2–3). Effective brokers have been found to build

trust by displaying a good understanding of the different contexts and cultures of stakeholders (Kilpatrick & Bound 2001) and developing skills in working across the different producer–industry–education sectors (Kilpatrick et al. 2002a). Sensitivity to the needs of learners is a critical part of the trust relationship (Crombie 2002).

Diversity of the membership base is identified as crucial to effective partnerships (e.g. Kilpatrick et al. 2002b). This means making sure relevant groups within the community are included. The literature indicates that effective partnerships use multiple methods to ensure community input (Shortell et al. 2002) and have realistic expectations of the time and resources needed to develop relationships (Greer & Scudds 2004). As Greer and Scudds noted, realistic expectations are particularly important when broking training in indigenous communities.

The Canadian Health Services Research Foundation (2003) identifies the features of a supportive environment for broking: 'one where there is a collaborative environment, sufficient resources for the job, processes to identify and capture knowledge generated by both employees and outside parties, and a desire to build intellectual capital' (p. i). Expanding on these characteristics, Mitchell (2004) identified four key enablers of effective networks: high level facilitation skills and a thorough knowledge of the VET system; processes for sharing ideas; processes for accessing information and resources; and evaluation of network outcomes using a range of strategies including reflection. Evaluation and reflection were also identified earlier in this chapter as a key stage in the partnership lifecycle. These enablers are effectively key attributes of brokers and broking organisations, although the Canadian Health Services Research Foundation (2003) noted that the fourth enabler, evaluation, was not specifically identified in the literature on knowledge broking.

While there is clearly a range of generic broking attributes described above, the literature suggests that there is no 'one size fits all' model of brokerage—brokerage is very much context specific (Canadian Health Services Research Foundation 2003). Similarly, there is no generic job description for a broker, although from the literature we can identify a range of core broker skills and competencies that effective brokers should possess. These are summarised by the Canadian Health Services Research Foundation (2003) as skills in evidence gathering, critical appraisal, relationship management, mediation, and communication. The authors also included personal attributes such as curiosity, imagination, flexibility, and ability to see the big picture.

At a broader policy level, the literature calls for policy flexibility in order to provide a better match between needs and training (e.g. Greer & Scudds 2004, discussed earlier). In addition to keeping the spotlight on issues of resourcing for brokerage, those involved in developing a broking culture call for support at a national level, in the form of a brokers' network to 'build commitment to broking and keep crucial energy from being wasted reinventing wheels' (Canadian Health Services Research Foundation 2003, p. i). This would seem to align well with research into communities of practice which focusses on the developmental aspects of people working together to facilitate their learning (Wenger 1998). Communities of practice are developed between groups of people who 'share a common interest and passion, and who continually interact' (Young & Mitchell 2003, p. 1). Research identifies a number of strategies designed to stimulate group reflection on their practice, including group

forums and workshops, and the use of experts to stimulate the development of knowledge by the community (Young & Mitchell 2003).

Inhibitors and challenges

Absence of the attributes of effective partnerships (described in the previous section) will inhibit partnership development. Inhibitors to effective partnerships fall within four broad categories: resources; structures for participation; leadership; and capacity for change. The impact of policy in inhibiting or challenging the development of partnerships is discussed separately, later in this section. The inhibiting effects of inadequate resources on broking partnerships include lack of time and other resources (Shortell et al. 2002; Greer & Scudds 2004), lack of continuity of staff and programs (Kilpatrick et al. 2002b), as well as too great a focus on technical work (Kilpatrick et al. 2001).

A survey forming part of the National Knowledge Broking for Regional NRM initiative identified areas of concern as: accessibility and availability of information; relevance of information to regional context; two-way flow of information; inadequate individual search and retrieval skills; and lack of information sharing across regions and between departments (Land & Water Australia 2005b).

Shortell et al. (2002) outlined a range of factors that characterised less successful community health partnerships, including:

- insufficient mechanisms for managing member input and focussing collective action, which resulted in difficulties in overcoming issues of trust
- limited depth and breadth of leadership for the partnership
- lack of vision or lack of commitment to the vision, and
- inability and/or unwillingness of the partnership to adapt and change to better meet changing needs and priorities.

In addition to the above issues, for RTOs acting as brokers, Gientzotis Consulting (2003) identified specific inhibitors as distraction from core business, and a range of issues relating to financial liability and accountability.

Key challenges to effective collaboration are identified by Miller (2001) as differing stakeholder priorities and the need to balance stakeholder priorities with partnership priorities. Strategies to overcome these challenges include: focussing on common goals; understanding each other's needs; identifying opportunities to assist each other; and ensuring a balance between the interests of the community and the needs of each industry.

Policy is viewed in the literature as a double-edged sword, in that it can enhance the development of partnerships (see earlier section 'Policy arrangements supporting training brokerage in rural Australia'), as well as present a range of challenges to collaborative training arrangements. Kilpatrick and Bound (2001) considered the effects of competition policy in Australian training provision, and how it impacted differently depending on the model of training brokerage adopted. They found that competition policy encouraged market-focussed brokers to protect their markets by putting in place arrangements with competitors, while it encouraged customer-focussed brokers to actively bring providers together in a spirit of cooperation,

especially where markets were thin. There is also evidence that some government policies for rural community development have negatively affected community empowerment and leadership, and the development of networks (which are all facilitators of effective training brokerage), by focussing on providing technical assistance rather than building community capacity (Cavaye 1999, cited in Kilpatrick et al. 2001).

In other cases, certain aspects of training policy have the potential to impact negatively on broking activity. However, the literature indicates ways in which this impact has been minimised by a flexible approach and effective communication between policymakers and practitioners. A good example is Greer and Scudds (2004), who describe the experience of FarmBis networkers broking training in indigenous communities in Victoria. Although FarmBis funding within Victoria is directed toward AQTF level 4 training, it was recognised that training pitched at this level may be unsuitable for some indigenous participants. FarmBis networkers worked with communities and the funding body to identify mutually acceptable and cooperative solutions. Training was developed at largely AQTF level 3 with some level 4 components, with the broker providing evidence to the funding body that no other subsidised course was available that would address the training needs identified.

Benefits of training brokerage

The literature and a review of Internet training broker sites, highlight a range of benefits of brokerage, for individuals, broking organisations, training providers, rural industry and natural resource management sectors, and rural communities as a whole. Some of this is based on more general research into partnerships and capacity building, and most is reviewed in earlier research into training brokerage (Kilpatrick & Bound 2001; Kilpatrick et al. 2001). All of these benefits are increased when training brokerage is underpinned by a strong client focus and learning orientation (Kilpatrick & Bound 2001).

In addition to the clear benefits of a better skilled and more responsive workforce for rural Australia, other benefits of brokerage include cost effectiveness and often cost savings for clients, providers and funding bodies (Kilpatrick & Bound 2001; Business Training Partnership; Firstbase Professional Development Solutions); wider choice and assured quality of training providers (Firstbase Professional Development Solutions); widely recognised and valued qualifications at both local and national level (Miller 2001); an increase in business for training providers (Kilpatrick & Bound 2001); empowerment of learners and development of learning networks (Kilpatrick et al. 2001); and increased social and economic community wellbeing through increased cooperation and collaboration (Kilpatrick et al. 2001). Where RTOs are acting as brokers or intermediaries, Gientzotis Consulting (2003) identifies three additional benefits for the RTO: increased awareness of industry need and increased links with industry; professional development of RTO employees; and improvements in quality delivery and a service culture.

Research by Kilpatrick et al. (2001) highlights the particular benefits for industry, of joint approaches to learning/training. The researchers found that a collaborative approach in which brokers play a key role, delivers outcomes that contribute to a more innovative and competitive rural sector. Specifically, they noted that

'[p]artnerships where industry is proactive in initiating and maintaining linkages and relationships tend to be the most successful' (p. v).

Conclusion

The literature reviewed provides a good overview of the unique role of training brokers in rural and regional Australia in contributing significantly to the development of individual and community capacity. This role extends well beyond traditional views of the role of brokers as commercially-driven providers of a service, and suggests far more needs to be known about how brokers operate. The literature emphasises that the relationship the broker establishes with clients and training providers is critical to the extent to which the needs of the client are met. Trust (or lack of it) underpins the client–broker–provider relationship. In addition, the matching of needs to training is underpinned by a strong client focus and learning orientation. Such an orientation focusses not only on meeting immediate and perceived training needs, but also provides ongoing support and develops lifelong learners.

While training brokerage is a broad concept that can be used to describe multiple types of arrangements, all brokers rely on having substantial networks on which they draw for delivering clients' training needs. For brokers to operate effectively, processes need to be in place for sharing ideas and accessing information and resources, and these processes need to be supported by a culture of collaboration. However, the review of the literature indicates that far more needs to be known about how to actually develop and sustain effective broking arrangements.

Within Australian rural industry and natural resource management sectors, there are a number of policy initiatives and strategies for facilitating collaboration in order to make the rural training market more responsive. However, in addition to FarmBis and specific references to broking in the *Shaping our Future* VET policy document, there would appear to be an urgent need for increased and specific support by government and industry at a policy level, to foster the adoption, implementation and evaluation of training brokerage activities on a far broader scale than exists at present.

Chapter 3: Methodology

Introduction

The project uses multi-method, multi-site techniques to investigate effective training brokerage arrangements in rural Australia. Features of the methodology include collection of both quantitative (telephone survey) and qualitative (telephone survey and case study) data, as well as stakeholder workshops to ensure project relevance and stakeholder ownership of the project and its findings. The following list shows how each project objective is linked to one or more research techniques by:

- Mapping existing training/learning brokerage arrangements in Australian primary industry (telephone survey).
- Investigate the outcomes for primary producers of these training/learning brokerage arrangements (telephone survey/case studies/workshop 1).
- Identifying features of effective broking arrangements and inhibitors to effective brokerage from the Australian primary industry experience and from arrangements in other industries and overseas (telephone survey/case studies/workshop 1).
- Deriving a series of models of effective broking arrangements that apply to learning activities for various sectors, groups and issues in primary industry (case studies/workshop 2).
- Preparing case studies and a user-friendly manual that can be used to promote effective broking arrangements (case studies/workshops 1, 2 and 3).

Involvement of stakeholders

A key feature of the methodology is the involvement of stakeholders as partners in the research. Stakeholder involvement was facilitated by:

- the formation of a project Reference Group
- presentation of three interactive stakeholder workshops to validate project findings and provide input into the development of the user-friendly manual
- presentation of case studies of good practice brokerage at workshops
- publication of case studies, and a step by step manual of how to establish effective broking arrangements, and
- provision of reports to stakeholders.

Reference group

The Reference Group comprised representatives from a variety of stakeholder groups including a: private rural consultant; public training provider; catchment management authority; Department of Primary Industry; FarmBis coordinator; and the Rural Training Council of Australia. Representatives were also drawn from an agricultural research organisation in New Zealand, and from the project sponsoring bodies CVCB and RIRDC.

The Reference Group was consulted at all key stages of the research: development of the survey instruments; identification of telephone survey participants and selection of case study sites; and development of principles for effective broking. Members also reviewed and provided comment on themes arising from the telephone survey and

case studies, and on the content of this final report and the user-friendly manual, *Matching training needs and opportunities: A guidebook.*

It is anticipated that the networks of Reference Group members will also assist with dissemination and adoption of project findings.

Stakeholder workshops

Three workshops were held as part of the project. The aims of the workshops were to:

- seek input from stakeholders into the development of good practice brokerage principles and guidelines
- give ownership to people in key positions to act as brokers
- provide an opportunity to ensure that organisations resource a broking function in accordance with good practice
- help build a network of brokers that could become a community for learning and support beyond the life of the project, and
- ensure that the implications for the role of brokers, in terms of any changes to funding and organisational arrangements, are incorporated as part of good practice brokerage.

Written reports on workshop outcomes were compiled and disseminated to stakeholders (workshop participants, reference group) at the conclusion of Workshops 1 and 2 (see Appendixes A and B). The specific purpose of Workshop 3 was to trial the manual, *Matching training needs and opportunities: A guidebook.* Feedback from workshop participants was incorporated into the final draft of the guidebook.

Telephone survey

The purpose of the telephone survey was to identify existing broking arrangements in Australian primary industry by contacting approximately 100 organisations and agencies of the types that were found to play the role of broker (i.e. with a focus on matching education and training to clients' needs).

Participant selection

Potential participants were identified using the investigators' extensive database of contacts, derived in part from a previous related project (Kilpatrick et al. 2002a). The database was updated over the course of the survey. It contained details of training providers; commodity groups; state/territory farmer organizations; government primary industry and education and training agencies; regional bodies and groups relevant to primary industry and natural resource management; former industry training advisory boards; and research and development corporations. In addition, the sample was expanded using a snowballing technique, whereby interviewees suggested further organisations to contact. While this process was effective in generating useful contacts, it did however bias the sample in terms of industries, location and the types of organisations interviewed (e.g. over half the sample comprised not-for-profit organisations).

Survey instrument

A telephone survey instrument was designed, with input from the Reference Group (see Appendix C). The survey instrument was designed using a Microsoft Access database system, which meant responses from interviewees were entered directly. There was a total of 45 items, but depending on their responses, some participants

were only requested to answer 41 of these. In addition, not all respondents were able to answer the final nine questions, relating to an example of a broking activity they had undertaken.

Questions were grouped into five main areas:

- general details about the organisation/business
- general information about their involvement in training (length of time, how many employees involved, how clients were informed about training, representation on training committees)
- specific information about their role in arranging training (number of events per year, approach to organising training, method/s for analysing, reviewing and acting on needs, funding sources for training)
- questions about their training brokerage activities (type of training organised and in which industry area/s and location/s, target client group/s, extent and usefulness of networks with others such as training providers, agribusiness, producer organisations, NRM organisations, regional development groups, government agencies, research bodies)
- questions about a specific example of training brokerage activity in which they had been involved.

Nearly all questions required respondents to select one answer from a list of options, with several permitting selection of multiple responses. The final set of questions about a specific example of training brokerage activity was largely open ended, and responses were entered into the MS Access database verbatim where possible, otherwise a summary of key points was entered.

The final draft of the survey instrument was trialled with a FarmBis coordinator and a State Department of Primary Industry representative. Minor modifications were made to the wording of some questions following the trial.

Telephone surveys took approximately 45 minutes to complete per respondent and were undertaken by two project staff members. Each staff member was responsible for undertaking approximately 50 telephone surveys. Regular meetings and discussions were held to ensure the quality and consistency of the coding.

Analysis of telephone survey data

The survey data were analysed with the aid of SPSS statistical software, comprising frequencies, cross-tabulation and cluster analysis.

There were three types of organisation targeted for survey: not-for-profit organisations, commercial organisations and government organisations. Approximately half the sample was not-for-profit organisations. Attributes of the organisations surveyed are summarised in Table 1.

Table 1. Summary attributes of the organisations interviewed

	Not-for-profit organisation (n=51)	Commercial organisation (n=18)	Government organisation n=31
Major activities undertaken*	Representation (30%), research (15%), extension (15%)	Training (46.1%), Research (23%)	Training (32.2%), Research (19.3%), Extension (12.9%)
Inform clients about training?	Yes (98%)	Yes (92%)	Yes (90.3%)
Top three ways clients informed	Flyers (82%), newsletters (78%), one to one (74.5%)	One to one (92%), Flyers (76.9%), Newsletters (69%)	Flyers (77.4%), Newsletter (74%), Press (70.9%), One to one (70.9%)
Number of employees involved in training	1-5 (66%), 5-100 (22%), >100 (7.8%)	1-5 (53%), 5-100 (30.7%), >100 (15.3%)	1-5 (29%), 5-100 (46%), >100 (15.3%)
Number of training events per year	1-5 (17.6%), 6-10 (15.6%), 11-50 (13.7%), >50 (19.6%)	1-5 (7.69%), 6-10 (23%), 11-50 (38.4%), >50 (23%)	1-5 (6.45%), 6-10 (3.2%), 11-50 (22.5%), >50 (35.4%)
Do they organise training?	Yes (86%)	Yes (92%)	Yes (87%)
Do they directly or indirectly organise training	Directly (66.6%) Indirectly (19.6%)	Directly (84.6%) Indirectly (7.69%)	Directly (67.7%) Indirectly (19.3%)
Do they analyse skills needs	Yes (90%)	Yes (92%)	Yes (74%)
Do they organise funding	Yes (72%)	Yes (69%)	Yes (93%)
What are the top three areas they work in	Primary production (82.3%) NRM (68.6%) Business management (60.7%)	Business management (84.6%), Primary production (69.2%), NRM (61%)	Primary production (77.4%), NRM (74%), Business management (54.8%)
What are the top three industries they work in	Grain (56.8%) Sheep/wool (50.7%) Beef (47%)	Sheep/wool (76.9%), Grain (69%), Beef (69%), Dairy (53%)	Dairy (51%), Beef (45%), Sheep/wool (45%), Organics (38.7%)
Where are they located	NSW (43%) Vic (11.3%) Tas (11.1%) WA (7.8%) SA (19.6%) NT (5.8%) Qld (9.8%) ACT (1.9%)	NSW (30.7%) Vic (38.4%) Tas (23%) WA (23%) SA (15.3%) NT (7.69%) Qld (23%) ACT (7.6%)	NSW (12.9%) Vic (6.4%) Tas (9.4%) WA (6.4%) SA (22.5%) NT (3.2%) Qld (9.6%) ACT (0%)
Who are their clients	Primary producers (84%) Agribusiness (31%) State government (31%) Farmer orgs (29%) NRM orgs (31%)	Primary producers (92%) Agribusiness (76.9%) State government (30.7%) Farmer orgs (30.7%) NRM orgs (30.7%)	Primary producers (83.8%) Agribusiness (51.6%) State government (16%) Farmer orgs (51.6%) NRM orgs (41.9%)
How many clients do they service annually	<100 (9.8%) 101-300 (19.6%) 301-500 (25.4%) 501-1000 (9.8%) >1000 (15.6%)	<100 (0%) 101-300 (46.1%) 301-500 (30.7%) 501-1000 (0%) >1000 (7.69%)	<100 (0%) 101-300 (15.3%) 301-500 (61.5%) 501-1000 (30.7%) >1000 (53.8%)
How long have they been involved in training	Always (35.2%) 0-5 yrs (17.6%) 5-10 yrs (29.4%) 10-20 yrs (17.6%)	Always (38.4%) 0-5 yrs (15.3%) 5-10 yrs (7.69%) 10-20 yrs (38.46%)	Always (38.4%) 0-5 yrs (23%) 5-10 yrs (61.5%) 10-20 yrs (92.3%)

*these activities were ranked by the organisations as being their main activity

A two-step cluster analysis procedure was employed to analyse common patterns of broking behaviour by the sampled organisations. Two-step cluster analysis is an exploratory tool designed to reveal natural groupings (or clusters) within a data set that would otherwise not be apparent (SPSS Version 12.0 Help File). The results of this analysis are reported in Chapter 4.

Data from questions 28 to 36 were qualitative, relating to an example of broking activity in which the organisation had been involved. These data were analysed with the aid of SPSS, and were used to inform the write-up of mini case studies and vignettes (presented in Chapter 4).

Validation of survey findings

Results of the survey, including three mini case studies, were presented to the Reference Group, and also to a workshop of approximately 30 stakeholders who were participants in the survey. The workshop, held in Sydney in July 2004, was used to validate the results, and to begin to build a picture of the attributes of effective broking arrangements.

Case studies

Six in-depth case studies of good broking practice were prepared (Chapters 5 to 10), as well as two additional vignettes (Chapter 4). Data for the case studies were collected by interview. The purpose of the case studies was to identify and showcase models of good broking practice, and to encourage adoption of these practices.

Case and participant selection

Subjects for the case studies were selected purposively from the examples of broking arrangements nominated by brokers during the telephone interviews. Criteria for selection were developed by cross-tabulating results of the two-step cluster analysis of survey data. Results of the two-step cluster analysis are reported in detail in Chapter 4. Cluster analysis revealed three spheres of broking activity: broker-active, client-active, and stakeholder-active (wide networks, active networkers and informers). These results were cross-tabulated to determine which organisations were strong in certain spheres but weak in others. The cross-tabulation produced a listing of 31 potential case study organisations. Potential case studies were therefore identified to represent a variety of broking arrangements, and were not necessarily the most active brokers (i.e. not necessarily active in *all* three spheres of broking activity).

A list of six case study sites, with backup selections for each, was prepared in consultation with the Reference Group. In some cases the first choice was unable to participate, so backup organisations were approached. Approximately 10 organisations were approached, resulting in six acceptances.

Selection of the six cases reflected a range of broker activity, based on the extent to which broking was a core activity, and the sphere of activity (broker-active, client-active, stakeholder-active). Cases also reflected diversity in terms of: organisation type (not-for-profit, commercial, government); range of primary industry sectors and the NRM sector; and the scope of activity (single state/territory, regional or national).

Table 2 summarises the attributes of each of the six selected sites.

Table 2. Characteristics of six case study sites

Name of case	Broking a core activity	Main sphere of broker activity	Type of organisation	Sector	Scope of activity
Biodynamic Agriculture Australia	No	Client active	Not-for-profit	All	National
Regional Skills Training Pty Ltd	No (brokers its own programs)	Stakeholder active	Commercial	Grain, sheep, beef, other livestock, equine	Regional/ multi state
DPIWE Dairy Branch	One of a number of activities	Stakeholder active	Government	Dairy	Regional/ single state
Solly Business Services	One of a number of activities	Broker & provider active	Commercial	Grain, sheep, beef, other livestock	Regional/ single state
Fitzroy Basin Association	Yes	Client active	Not-for-profit	NRM	Regional/ single state
Victorian Grains Industry Training Network	Yes	Client & stakeholder active	Not-for-profit	Grain	Regional/ single state

For each case study, the broker, training provider/s and client/s who had participated in the brokered training were identified and approached to participate in an interview. Where relevant, other key stakeholder/s in the broking process were also approached for interview. The purpose of the interview was to gain an understanding of the processes used to identify learning needs and to match them with effective training, and of the outcomes for primary producers of these broking arrangements.

Survey instrument

With input from the Reference Group, semi-structured interview schedules were developed for each of the three target groups: brokers, training providers/other stakeholders, and participants in the training (see Appendix D). All questions were open ended, and participants were prompted to provide further details as appropriate. Interview schedules were slightly different for each of the three target groups.

Brokers were questioned about two specific examples of broking activity: an earlier one, and then a more recent one. For each, they were asked a range of questions about the broking process, including: what triggered the need; who was involved; whether it met client needs; and factors that influenced (and inhibited) its effectiveness. Training providers/other stakeholders were questioned about their role in developing the second (more recent) training program mentioned by the broker. Participants in the brokered training were questioned in two areas: firstly, about their involvement in and satisfaction with the second (more recent) training program mentioned by the broker, and then about their general impressions of how training courses can be developed to

best meet their needs (e.g. way in which an organisation establishes training needs, type of marketing etc.).

The broker interview schedule contained more items (35) than schedules for the two other groups (13 items), and took approximately one hour to complete. Questionnaires for other interviewees took approximately 45 minutes. All interviews were recorded with the participants' permission, and later transcribed. Interviews for Biodynamic Agriculture Australia and Fitzroy Basin Association were conducted by telephone due to lack of time. The remaining case study interviews were conducted face-to-face. All four project staff were involved in collection of case study data: two staff completed one case study each, and two staff completed two case studies each. Where possible, staff who conducted interviews also wrote the case study for the site.

Analysis of case study data

Case study data were analysed manually, using the following broad framework to capture the broking process: identifying training needs; engaging people; identifying and negotiating appropriate training; evaluation and further training; and factors which enhance and inhibit effective brokerage.

The framework was derived from key themes identified in the data and from the literature on the development of client-focussed training (Kilpatrick et al. 2002a). These themes were developed and refined by the project team during the course of their meetings, and through individual consultation.

Once project team members had written draft case studies, they were circulated amongst other team members for review. A project team meeting then determined a case study format for consistent presentation of findings.

Validation of case study findings

Final drafts of the six case studies were forwarded to interview participants for checking and comment. Requested changes were subsequently incorporated into the case studies.

From the case studies, a set of draft criteria for effective brokerage was developed. These criteria were also informed by the telephone survey and the literature review. The case studies and resulting criteria for effective broking were presented to the project Reference Group for comment, and the changes made related largely to the format and readability of the case studies.

The case studies and criteria were then presented to a workshop of approximately 30 invited stakeholders, including key client stakeholders and researchers, telephone survey participants and two case study participants. Workshop 2 was held in Melbourne in June 2005. Approximately one-third of these workshop participants had also participated in Workshop 1.

The workshop was used to showcase the six models of good practice, to validate the results further, and to provide further input into the development of the manual, *Matching training needs and opportunities: A guidebook.*

A guidebook for developing good practice for training brokerage

A web-based user-friendly guidebook for training brokers was developed, incorporating data from the telephone survey and case studies, as well as material from stakeholder Workshops 1 and 2. The draft guidebook was reviewed by the project Reference Group and their comments incorporated into the final design.

The guidebook was then trialled at a workshop of approximately 30 invited participants. Workshop 3 was held in September 2005 in Toowoomba, as a pre-symposium activity for the APEN-sponsored natural resource management conference *Building capacity for sustainable resource management: moving wheelbarrows full of frogs!* The workshop was also used to validate the final set of principles for effective brokerage, which had been amended following Workshop 2. In accordance with feedback from Workshop 2, the guidebook was also produced in PDF and CD-ROM formats.

Participant information, consent and post-contact

In accordance with University of Tasmania ethics procedures, subjects for both the telephone survey and case studies were sent a project information sheet and then telephoned or emailed to ascertain whether they were willing to participate. Case study interviewees were also emailed or faxed a consent form and asked to sign and fax or post it back. They were asked on the consent form whether they were prepared to have the name of their organisation identified in the case study. Participants in the telephone survey were not required to complete a consent form, as their agreement to take part in the telephone survey was deemed to signify consent. Copies of both information sheets, and the informed consent form for case study participants are provided in Appendix E.

All six case studies gave permission for their organisations to be named. In accordance with University of Tasmania ethics, every effort was made in writing up the case studies to ensure that individual interviewees were not identifiable, for example, by using generic position and status titles such as 'trainer', 'farmer', 'farmer organisation representative', or 'government agency representative'. Since case studies were chosen as examples of good practice, it is not anticipated that any harm or discomfort would follow should one of the members or employees of an organisation be identifiable.

To ensure anonymity of subjects, telephone survey response sheets and interviews were coded numerically, and the list connecting the codes to identifying information kept in a separate location from the completed surveys and interview transcripts. In addition, telephone survey data have been reported in grouped, numerical form only (tables and charts).

In terms of post-contact, participants in the telephone survey were invited to the three workshops, and case study interviewees were invited to Workshops 2 and 3.

Limitation of the data

This project intentionally focusses on good practice models of training brokerage. One of the limitations of the project is that it does not consider examples where brokerage has failed. We expect that practitioners should evaluate any brokerage

arrangements in which they participate. They should ascertain that brokers with whom they work meet the good practice principles set out in Chapter 11.

Summary

This multi-method, multi-site approach to investigating effective training brokerage arrangements in rural Australia had, at its core, extensive stakeholder involvement. This approach facilitated the validation of telephone survey and case study data, and ensured project relevance and stakeholder ownership of the project and its findings.

The results from the telephone survey, and an introduction to case study findings, are presented in Chapter 4.

Chapter 4: Results

Introduction

This chapter reports key results from the statistical analysis of telephone survey data using SPSS statistical analysis software. Appendix F provides a summary of frequencies for questions 1 to 27c.

Statistical results are presented in relation to three areas of enquiry:

- Clustering of broking activity
- Mapping of broking activity
- Type of broker.

Findings from the preliminary qualitative analysis of survey data are then reported under the following headings:

- Key attributes of brokerage
- Mini case studies of broking activity

The survey findings are complemented by two additional training brokerage vignettes at the end of this chapter, and by six in-depth case studies which are presented in the following Chapters 5 to 10.

Clustering of broking activity

Using a two-step cluster analysis (described in Chapter 3), results from the telephone survey of 100 organisations that were considered to undertake a training broker role to some extent, were analysed. Results showed that training brokers can be expected to be active in three spheres:

- client sphere,
- provider sphere, and
- sphere of other stakeholders who may be able to provide useful input into training needs analysis, and whom the brokers can inform about various aspects of training.

Each sphere comprises a number of clusters of activity. The activities and characteristics of organisations within each cluster are also identified. The following three sections consider each of the three clusters of activity in turn.

Client activity clusters

Interactions with clients, defined here as potential training participants, can be grouped into five clusters:

- Client-active A
- Client-active B
- Needs-aware
- Disseminators
- Removed from clients.

These clusters are based on ways of analysing client needs and on modes of contact with clients. The clusters are described in Table 3, with the first two representing the most comprehensive needs analysis and contact behaviours in the sample.

Provider activity clusters

Interactions with providers can be grouped into four clusters:

- Provider-active
- Broker–provider active
- Self-contained provider
- Isolated from providers

The clusters are based on range of providers contacted, the frequency of contact, and the reported usefulness of interactions with providers. They are described in Table 4, with the first representing the most comprehensive range of interactions and reported use of information gained in interactions. Use of information considered is both input into the training brokered by the organisation and into training development more broadly.

Other stakeholder activity clusters

A key finding from a previous project on client-focussed education and training (Kilpatrick et al. 2002a), was that good practice in the development of training programs requires active use of a wide range of networks. It is reasonable to expect that broking practice will be enhanced by networking activity with non-client and provider bodies that could assist, for example, in identifying emerging training needs, sourcing funding and increasing awareness of suitable training providers for meeting client needs.

The survey identified two aspects of networking. The first is the types of organisation and individual contacts relevant to training brokerage (network contacts). The second is the formality or otherwise of these relationships and the use made of networking interactions (network behaviour).

Network contacts

Organisation non-client or provider contacts relevant to training fell into three clusters:

- Wide networks
- Government orientated
- Limited networks.

These clusters are described in Table 5. As the name indicates, the first of these had the widest range of networks.

Network behaviour

The organisations' networking behaviour can be grouped into six clusters:

- Active networkers and informers A
- Active networkers and informers B
- Active networkers
- Active informers
- Proactive re own provision
- Sedentary in training networks.

Table 6 provides a description of the clusters. Just over half the sample fell into the first two groups, which were proactive in networking and informing others about training. These organisations were active in networking on all aspects of training development and provision, including having formal input via membership of committees dealing with training issues.

Mapping of broking activity

Appendix G (Tables A1–A10) sets out findings from the telephone survey in terms of the industry and geographic coverage of the surveyed government, commercial and not-for-profit organisations, according to their categorisation in the client, provider and networking clusters. The totals columns of the tables show the number of organisations operating in each industry (e.g. Table A1) and state/territory (e.g. Table A5).

Many organisations operate in multiple industries and states/territories. Nineteen organisations operate nationally and 15 others operate in more than one state. The number of organisations active in each industry and state roughly reflects the size of the industries and states. For example, around 50 organisations operate in each of the sheep/wool, grain and beef industries, but only 12 in sugar and 15 in cotton. Aquaculture and commercial fishing were represented by 15 and 12 respectively and there were only six organisations in the survey that did not cover production aspects of primary industry (identified as 'not primary industry'). The scope of most of these was natural resource management.

Organisations that operate in only a part of one state/territory (24 of those surveyed) are less likely to be in the Client active A or B categorisations. There were no other significant differences in levels of broking activity according to geographic location.

Organisations that operate in the 'not primary industry' sector are less likely to be active in broking roles. They are less likely to be either Provider active or Broker–provider active, more likely to be Isolated from clients, have Limited networks and more likely to be Proactive re own provision, but not otherwise active in networks. These organisations are mainly focussed on natural resource management.

There are few other statistically significant variations in broking behaviour from industry to industry. In terms of client activity, organisations operating in the dairy and pig industries are more likely to be Needs aware and Disseminators, and less likely to be Isolated. Organisations operating in these two industries, as well as those in grain and sheep/wool industries, are more likely to have wide networks. Sugar targeting organisations are more likely to be Sedentary in networks.

Table 3. Client broking activity clusters

Cluster[1] (number in cluster)	Needs analysis summary	Client contact summary	Organisation's activities[2]	Characteristics summary[3]
Client active A (30)	targeted, comprehensive range of sources, highly interactive	diverse range of information and advice methods	research/training, extension/political	representative of sample, though none are non-primary industry focussed
Client active B (27)	targeted, comprehensive interactive	comprehensive range of information and advice methods	heavy training emphasis, also extension/community development/research	representative of sample, though includes more organisations with larger numbers of employees, more of all agricultural industries than sample and none non-primary industry focussed.
Needs aware (14)	targeted, comprehensive interactive	limited range of information and advice methods	training, extension/community development/political/NRM	few government organisations, tend to be longer established and smaller (in terms of employees and client base) than sample
Disseminators (12)	informal methods	diverse range of information and advice methods	training/political/some NRM	representative of sample, though none are non-primary industry focussed
Removed from clients (15)	do not analyse needs	limited range of information methods	extension/advice/NRM/research/ community development	generally representative of sample, though includes most non-primary industry focussed organisations

[1] Client clusters are based on survey questions 5, 11, 12, 22a. There were 98 organisations that answered most questions.

[2] Based on top ranked 3 activities.

[3]Considers organisation type, employee and client numbers, length of establishment, focus industry, and topics of training resulting from brokerage activity.

Table 4. Provider broking activity clusters

Cluster[1] (number in cluster)	Provision activity and interaction	Organisation's activities[2]	Characteristics summary[3]
Provider active (41)	self provision, wide range of 2-way outside interactions with (other) providers	wide spread of activities	primary industry training orientated, more likely to broker/provider unaccredited training, includes most commercial organisations
Broker-provider active (16)	some providers, some removed from provision, many have wide range of 2-way outside interactions with (other) providers	wide spread of activities, more lobbying, policy, advice, extension than sample norm	biased toward government organisations, more likely to be removed form training provision or delivering extension rather than training
Self-contained provider (32)	self-contained provision, some input into others' training, little outside input into own	typical range of activities as per sample	representative of sample
Isolated from providers (9)	isolated, few are providers	more community development, NRM, and representation than sample, little training, or policy	non primary industry and non-training focus, many not-for-profit, many unaware of training topics

[1] Provider clusters are based on survey questions 8, 15, 16, 17, 21, 22c, 25, 27c, 27f. There were 98 organisations that answered most questions.

[2] Based on top ranked 3 activities.

[3]Considers organisation type, employee and client numbers, length of establishment, focus industry, and topics of training resulting from brokerage activity.

Table 5. Network contact activity clusters

Cluster[1] (number in cluster)	Networking contacts	Organisation's activities[2]	Characteristics summary[3]
Wide networks (24)	wide range of contacts; targets organisations as well as potential training participants in brokerage	wide spread of activities, more research, less representation and NRM	more government and larger organisations, longer established, all industries and training topics covered
Government orientated (44)	government contacts, some other contacts, limited non participant targets in brokerage	typical spread of activities, with more NRM	typical characteristics, plus has all small client base organisations, typical training topic and industry spread
Limited networks (30)	some non-government contacts, negligible govt contacts, very limited non participant targets in brokerage	more extension and funding, less training and lobbying than typical of sample	more not-for-profit, less government, smaller employees and client base, includes all non primary industry, more horticulture, typical topics

[1] Network contact clusters are based on survey questions 22, 26, 27. There were 98 organisations that answered most questions.

[2] Based on top ranked 3 activities.

[3]Considers organisation type, employee and client numbers, length of establishment, focus industry, and topics of training resulting from brokerage activity.

Table 6. Network behaviour activity clusters

Cluster[1] (number in cluster)	Networking behaviour	Organisation's activities[2]	Characteristics summary[3]
Active networkers and informers A (27)	active in all aspects of training; have representative roles on committees re training; have frequent contact with providers/brokers	training and extension focus	commercial and government organisations strong primary production focus; all primary industries included
Active networkers and informers B (26)	active in all aspects of training; have representative roles on committees re training; have occasional contact with providers/brokers	lobbying, policy, funding focus	commercial and government organisations; tend to be removed form provision and tend to have business training bias; all primary industries included
Active networkers (10)	active networking in all aspects of training, but do not have representative roles on committees	community development, research, representation and lobbying	commercial and not-for-profit organisations only, smaller, business training, with some production and NRM; all primary industries included
Active informers (16)	input into others' training, contact with providers/brokers, some represent, but no gathering of information on needs via non client or provider networks	wide range, more advice, extension, NRM	typical of sample, slightly more business training; less likely to cover horticulture than sample as a whole
Proactive re own provision (11)	gather information re training needs, contact other brokers/providers, represent on committees, but no input into others' training	community development, NRM and training focus	non commercial, longer established, otherwise typical of sample
Sedentary in training networks (8)	very limited networking, yet half are on committees dealing with training	extension, advice and NRM focus	not-for-profit dominated, smaller, less production and business training topics, includes most non primary industry focussed organisations

[1] Network behaviour clusters are based on survey questions 6, 14, 17, 24. There were 98 organisations that answered most questions.
[2] Based on top ranked 3 activities.
[3] Considers organisation type, employee and client numbers, length of establishment, focus industry, and topics of training resulting from brokerage activity.

Most active training brokers

From the survey of government, commercial and not-for-profit organisations, it was proposed that the most active training brokers could be expected to be in *all* the following clusters:

- Client-active A or B
- Provider-active
- Wide networks
- Active networkers and informers A or B.

Only seven of the 98 organisations surveyed were in all these clusters and so met the criteria of *most active training brokers*. They included a wide range of organisations: two state industry training bodies; one state farmer association; one commercial training provider; an agricultural college; one government primary industry department commodity section; and a university rural research and development centre that is not focussed on primary industry.

Table A9 shows that none of the seven most active brokers identified in the survey operates nationwide, and none operates in only part of one state or territory. All are either single state focussed (five of the seven) or operate in more than one state and/or territory, but not all states and territories (two). None operates in Western Australia or South Australia. Tasmania has three of the seven active brokers.

The most active brokers were present in all primary industry groupings, but not in the 'not primary industry' category (see Table A10). The dairy and grains industries were represented by the most brokers (all seven in dairy and six of the seven in grains).

Least active training brokers

Conversely, the least active training brokers could be expected to be in these clusters:

- Removed from clients
- Isolated from providers
- Limited networks
- Sedentary in training networks

Four of the 98 organisations surveyed were in all these clusters and so met the criteria for *least active training brokers*. These were a catchment management authority, a regional NRM body, one agricultural commodity peak body, and an agricultural youth organisation.

Type of broker

The findings suggest three broad arrangements for training brokerage in Australian rural industry. These arrangements are based on whether or not the broker was also a training provider. Training providers include individuals and organisations, both private and public, providing accredited or non-accredited training or learning opportunities. These three arrangements are described below and summarised in Table 7.

Training providers using broking principles in their practice

Examples include training providers who employ local coordinators to facilitate a better match between client needs and training opportunities, and/or those who develop a wide network of stakeholders to help identify training needs, including other training providers, industry associations and government agency representatives. Use of broking principles ensures high quality training provision and a good match between needs and opportunities. This is not brokerage according to the definition in Chapter 1, because the principles are applied to matching the provider's *own* programs to *their own* clients' needs. This category includes private consultants, and public and private training providers.

Training providers acting as training brokers

These include training providers involved in compiling a program that uses *other* providers, or those who *specifically refer* clients to *other* providers who will be able to meet their needs, for example, as part of the clients' learning pathway at the end of a course. When acting as a broker, the training provider considers *the whole suite of present and potential training opportunities* and actively matches needs to training, acting in the best interests of the client. This ensures clients are provided with the best possible learning pathway. Private consultants and private training providers fall within this category.

Other brokers

These are independent third parties who have no pecuniary interest in the training brokered. They could be termed full service training brokers. This group includes a wide range of largely not-for-profit organisations, such as industry, farmer, and NRM/catchment organisations.

Table 7. Broking roles of training providers compared with other brokers

Activity	Training provider using broking principles	Training provider acting as broker	Other broker
Identify needs of *my* client group	X	X	
Identify needs of *all* broker client groups			X
Identify/develop *my* training opportunities	X		
Identify *all* training opportunities		X	X
Find best match of *my* training to my client group	X		
Find best match of *all* training to my client groups		X	X
Deliver the training	X	X	
Coordinate delivery of the training		X	X

Key attributes of brokerage

Below is a list of attributes of different parts of the training brokerage process, identified from the telephone survey and validated by participants during Workshop 1. They are categorised into project development; project management; managing stakeholders; clients; assessment of needs; program delivery; and evaluation. Listed

under each of these headings are some of the key points within the broking process that contributed to a program's success. These points were identified by respondents in the survey interview process. The list represents a synthesis of responses regarding effective training brokerage characteristics.

Project development

- Involving all relevant stakeholders in the development of the package.
- Designing a program that can be managed with an adaptable capacity so that it is able to meet the participants' needs—a very flexible program.
- Using local knowledge and expertise whenever possible but identifying when to bring in outside help.
- Knowledge and networking through FarmBis, having the knowledge of who should be involved in the entire process.
- Good understanding and contact with what is occurring in Australia—a broad history base, with advisors having been involved over many years and having a good understanding of clients and their needs.
- Familiarity with where to obtain resources (funding, networks, trainers, evaluators).
- Including in programs a professional development element for the trainers.

Project management

- Ownership and leadership within the steering group that leads the program.
- Organising the backing of four government agencies at the start of project development so that resources are not compromised—facilities, staff and reputations.
- Planning and developing business and communications strategies through a consultative process.
- Reputation for running high quality activities that are well organised and attended.
- Having systems for tracking people to commit to opportunities so that courses have 90% enrolment.
- Ensuring relevance of the course activity.
- A broker having a number of hubs and working with a network, not just from one central point. The way the network is designed then ensures training can meet local needs along with regional and national needs. It should work well at different scales.
- Broking needs to have systems for listening and responding to clients' needs to ensure they are able to deliver what the clients are asking for. Addressing childcare needs, or open online forums that are always available.
- Coordinating a process with trainers who are qualified industry specialists, courses funded with FarmBis and conducted in an environment suitable to rural producers. Ensuring the processes are in place, with the right timing and coordination, so that courses are top quality.
- Ensuring events are well publicised and highlighting the requirement of participation, good course content and good delivery with a rural focus.
- Networking, having a large database to promote the program extensively.
- Capitalising and maintaining networks and previous training relationships.

Managing stakeholders

- Existing relationships with large organisations with status, and strong industry and community support (e.g. Rabobank).
- Having the information available to all stakeholders who could potentially be involved, having someone to answer any questions at a systemic level.
- Personal networks, high level of trust and reliability.
- Involvement of industry at all stages of development and delivery.
- Involving leading producers to 'talking the show up' and to sell the credibility of deliverers.
- Having a cooperative approach with stakeholders.
- Working together in partnership with the supply chain manager to develop a program.
- Determining the depth of involvement of all the organisations, contribution between industry and government, sharing of resources.
- Regular contact between stakeholders and discussion groups.

Clients

- Having a holistic strategy that enables participants to continue the program after it has finished.
- Openness to a wide range of ideas and a partnership approach to working with potential clients.
- Knowing your clients as part of your job.
- Having a good working relationship with farmers. Understanding the farming business so that when training is organised farmers can attend.
- Clients possibly becoming brokers themselves, offering their properties for demonstration purposes, promoting and even subsidising courses.
- Ensuring that communication between the people delivering the training, and the broker, is effective. 50% formal and 50% informal, but with regularity being the key.
- Significant effort on the part of program coordinators to encourage clients to participate.

Assessment of needs

- Recognising a timely idea, and having training conducted by the organisation.
- Ensuring the needs of all stakeholders are met in the process.
- Having contact with what is occurring in Australia—a broad history base, advisors having been involved over many years, and having a good understanding of clients and their needs.
- Attempting to select trainers who understand the participants' business—city-based trainers may not be warmly welcomed by the rural community.
- Selecting the right trainers. Building a relationship between the participants and the trainers.

Delivery

- Organising skilled trainers with the required resources.
- Providing support on an on-going basis.
- Organising training in line with other events and providing financial incentives, e.g. rebates.

- Identifying and using deliverers who have their own following so that people are more likely to attend.
- Identifying an appropriate training style— taking it to people's farms and making it relevant, appealing to different learning styles.

Evaluation

- An extensive evaluation strategy.
- Developing systems for obtaining feedback from farmers who were attracted to the course.
- Always conducting a pilot program.
- Evaluating using an independent organisation.

Mini case studies of broking activity

From the qualitative data provided in the telephone surveys, three mini cases were prepared (see following pages). These mini cases provide specific illustrations of the range of organisations involved in broking, and the various combinations of behaviour and activities that can be employed in brokerage processes. The mini cases are not intended to represent the typical broking arrangements of these types of organisations.

Mini Case study 1. Not-for-profit organisation

Program
Fungicide diagnostic field school

Program in operation
August 2003

Broking role of the organisation
The broker organisation identified the need, developed the program, sourced trainers, advertised, administered and reported on project outcomes.

Need identified
Lack of skills and knowledge relevant to the products available, and the appropriate use of fungicide within broadacre production.

Who was involved and what was their role?
The need was identified through a survey of organisation members, and research and feedback from field days that they conducted. Staff within the organisation developed a concept and contacted the Foundation for Arable Research, the expert in this field, which then helped prepare the content of the program along with local farmers and agribusiness. Grains Research and Development Corporation provided funding for an expert consultant to help develop the program further. A co-delivery process was set up between the expert consultant and the broking organisation.

How did they know it met their clients' needs?
Formal evaluation was carried out. A two-page questionnaire was developed and a very positive response to the program was received.

How did the broking process contribute to the program's success?
The program would not have been as successful if the broker had merely brought the expert consultant in to deliver a course. Having the program applied at the local level ensured that it was grounded in local reality. However, it was necessary to source the expertise, as it is not available here. Engaging an agronomic consultant for the practical side and having a farmer committee as a 'sounding board' for the program concept and content was useful, as was conducting a pilot of the program with them. Also, the broker organisation attempted to deliver in local areas so farmers did not have to travel long distances.

Mini Case study 2. Commercial organisation

Program
Achieving through leadership

Program in operation
2003-2004

Broking role of the organisation
Identifying the opportunity for a course on leadership, program development, and delivery and marketing to customers. The need for the program was informally identified. The broker identified and organised an accredited training facilitator.

Need identified
The need was identified by the organisation, using its knowledge of its clients. The leadership step was needed for those clients who were considered to be high achievers. The program was developed 'on a hunch', through awareness that it was offered in the city, and was identified as an opportunity which could be offered to its farming clientele.

Who was involved and what was their role?
The organisation developed the content by purchasing the tool used for another leadership program. The broker organisation then contracted an outside accredited deliverer. The broker organisation obtained FarmBis funding to reduce the costs to farmers participating in the course.

How did they know it met their client's needs?
Formal evaluation was conducted and all courses were sold out.

How did the broking process contribute to the program's success?
Identifying an opportunity outside agriculture—bringing a program used by city companies to rural Australia. Increasing the opportunity for primary producers to have access to training. Using FarmBis meant that it was very affordable to participate. Ensuring that delivery of the training was professional, and always conducted by the best trainers. The broker organisation also ensured the facilitators were representing rural industries, so they identified with participants and created a safe learning environment. In addition, the course was held at a resort so participants could have a holiday, making the experience even more enjoyable.

Mini Case study 3. Government organisation

Program
Environmental Management Systems pilot program

Program in operation
July 2003 to 2004

Broking role of the organisation
The broker organisation worked to facilitate and coordinate multiple stakeholder input to developing the project. The organisation also provided a representative on the steering committee that maintained the program.

Need identified
Natural resource management—a major issue nationally.

Who was involved and what was their role?
Eleven collaborators provided input for the program: Apple & Pear Growers; Adelaide Hills wine region; Cherry Growers of South Australia linked with EPA Watershed Protection Office; Department of Land & Water; CSIRO Land & Water; Department of Biodiversity & Conservation; CRC for viticulture; Adelaide Hills Council; Adelaide Hills Regional Development Board; and Primary Industry South Australia. Funding was provided by Department of Agriculture, Food and Fisheries (DAFF) and other participants on a cash or in-kind basis. It was a $1.4 million project that required the broking organisation to coordinate monthly reports to DAFF. The broking organisation also coordinated the activities of the participants in the program. The participants represented 32 properties from across three commodity groups—apples, pears and cherries. Coordination of these activities was achieved using two part-time staff. They organised two workshops for the participants, as well as providing one-on-one training on properties. The broker organisation was aiming for a template that could be used nationally.

How did they know it met their clients' needs?
Formal evaluation was conducted and a monthly reporting system was also used.

How did the broking process contribute to the program's success?
Coordination enabled a significant depth of involvement from all the organisations. It generated a significant collaboration between industry and government, and also the sharing of resources.

Case studies and vignettes

The six in-depth case studies are featured in Chapters 5 to 10. To supplement the case studies, a further two vignettes were prepared, featuring the role of other organisations as brokers. The purpose of the vignettes was to illustrate that not all organisations have the time, resources or capacity to undertake training brokerage in the same way or at the same level described in some of the case studies. However, such organisations are still able to play a role in helping to match training to training needs for their members/clients, with some less proactive, and others more proactive in the role.

Vignette 1

A professional development coordinator employed on a rural campus of a tertiary institution in Victoria was approached by a group of women to organise a one-day workshop on capacity building for rural women in the local community. She organised the venue, catering, presenters, funding and promotion, and undertook a formal evaluation of the workshop. Women also networked by email to promote the workshop, and to keep costs down. The workshop was delivered by a national women's organisation, and funded by the State government. Formal evaluation of the program indicated its effectiveness, particularly in terms of making training available within the local area. Without this, a number of the women would have been unable to attend.

Vignette 2

A fruit growers' organisation with national membership, identified through a formal member survey that its members required training in all aspects of exporting and marketing their produce. It organised a national marketing forum to coincide with its annual conference. Registration fees for the conference helped to fund the forum. The fruit growers' organisation advertised the forum on its website and in flyers; approached researchers, exporters and marketers to provide a training session each during the forum, and conducted a formal evaluation of the activity afterwards. The evaluation indicated that the forum had been effective because it had disseminated information that the growers had requested. It was also effective because it brought all the parties together to discuss issues.

Chapter 5: Biodynamic Agriculture Australia

Case summary

- Association of farmers and others interested in biodynamics
- Uses farmer members to broker training for local/regional communities
- Main funding source is FarmBis, but beginning to explore different funding sources including fee for service

Background

Biodynamic Agriculture Australia is a not-for-profit association formed some 15 years ago to make and sell biodynamic preparations and provide guidance in their use to its members. The organisation has its base in rural New South Wales, and employs three full-time staff (a Chief Executive Officer, Education Officer, and Operations Administrator) and three part-time staff. It has a number of regional groups in each state, and in excess of 1200 members nationwide, with an additional 173 people subscribing to the newsletter only. Membership is diverse, including producers from all primary industry sectors, home gardeners, and those for whom biodynamic production is part of a wider concern for social and environmental issues.

Workshops conducted by Biodynamic Agriculture Australia staff are largely of an introductory nature, comprising the Introduction to Biodynamic Farming Practices workshop. This is a two-day workshop run in various locations in all states except Tasmania, depending on sufficient participant numbers and the availability of presenters. The workshop is designed to give participants the basic principles behind, and the techniques to practice, sustainable natural resource management on their properties. Workshops cover some of the competencies of the Agricultural and Horticultural Training Packages. Successful completion provides participants with a Certificate of Attainment for the competencies achieved, from a Registered Training Organisation in New South Wales.

Identifying training needs

When the Introduction to Biodynamic Farming Practices workshop was first offered in several locations in rural Queensland in 2000, it was initiated by Biodynamic Agriculture Australia in the belief that sufficient people would be interested in attending. Since then, as more people have participated in many more workshops and have begun to implement biodynamic practices on their own farms, interest in the workshop has grown considerably and workshops are now run largely on demand.

This is where the role of local farmers as training brokers comes into play. One farmer broker is a beef producer in a small rural community north-west of Brisbane. He is an active member of Biodynamic Agriculture Australia and has extensive informal and formal networks both within and outside his local area. He is frequently approached for advice and information by locals, and those outside the region, and is listed in the Biodynamic Agriculture Australia newsletter as a contact person for his area.

Although he provides this advice on an individual basis, he is also active in organising training for farmers. These activities are undertaken on a voluntary basis.

The farmer broker participated in one of the first Introduction to Biodynamic Farming Practices workshops offered by the organisation several years ago in another rural location. He now works with the organisation's Education Officer, to coordinate workshops in his local area, the most recent one being held in February 2005 on his property. The farmer broker reflected on the workshop:

> *The last workshop that we had here I knew we needed it because we have a rather diverse sort of community here... it's not just cattle, there's a lot of orchards, grape growers, crop farmers, dairy farmers.*

The use of biodynamic practices was seen as an environmentally sustainable way for each group to address its particular problems (e.g. bird problems in vineyards, control of weeds in broadacre crops). After identifying a group of approximately 25 farmers, he contacted the Education Officer to initiate the delivery of an Introduction to Biodynamic Farming Practices workshop, suggesting a suitable date.

Engaging people

Once organised, the workshop was advertised by Biodynamic Agriculture Australia via its website and a mailout to members in the region, and by the farmer broker through word of mouth, using his extensive farmer and natural resource management networks. Personal contact with others was important in generating participation, as he noted: '...the fact that they know we're up and going with it [biodynamic production] does help to bring people in [to the workshops]'. Also important were the farmer broker's links with the reporter on the local community newspaper, who provided both pre- and post-workshop publicity.

Identifying and negotiating appropriate training

Planning and developing a training program

The farmer broker and organisation's Education Officer jointly identified appropriate topics and devised a plan for the February workshop that would be relevant to the needs of the group. This process drew on the Education Officer's knowledge of program content and skills in program planning and delivery, and the farmer broker's knowledge of the particular needs of the group and of local conditions. Although most workshops were FarmBis-funded, the February 2005 workshop was funded through participant fees, which were kept as low as possible. Nevertheless, the farmer broker noted that he knew of 'at least six or eight farmers' who would have benefited from the training but could not afford to attend.

Participants in this and other workshops commented favourably on the format, beginning with a session on the basics 'which everyone needs', and followed by a range of sessions throughout the day on different topics related to biodynamics, such as weed and insect and bird management and the effect of biodynamic preparations on the root systems of plants. Workshops were delivered by two presenters: the Education Officer from Biodynamic Agriculture Australia, and one other person who focusses on a specialist area of biodynamics (e.g. the use of broadcasters to distribute biodynamic preparation).

Evaluation and further training

The organisation's Education Officer noted that formal evaluations undertaken by participants in the Introduction to Biodynamic Farming Practices workshops indicated satisfaction, in terms of workshop content and delivery. For the February 2005 workshop, another indication of success was that all course participants subsequently became financial members of the organisation; no previous workshop had reported a 100% enrolment of new members.

Following participation in Biodynamic Agriculture Australia workshops, there are several options regarding further information and training. All participants are encouraged to maintain contact with the Education Officer who provides an extension service by telephone. Some participants continue to seek advice and clarification from the farmer broker who is happy to provide this, noting 'that's where our local contacts come into their own'. Some choose to form or become part of an existing regional Biodynamic Agriculture Australia group.

Members of the organisation, such as the farmer broker, continue to actively seek additional training opportunities for themselves and others. For example, through his contacts with farmers outside his local area, the farmer broker became aware of a workshop on radionics being offered in another part of Queensland later in 2005, which he and four others from his area attended. While at the workshop, the farmer broker negotiated with the presenter to deliver a session in his local area. He offered to put together a group of interested participants and assist with organisation of the course, as he does for the Biodynamic Agriculture Australia workshops.

Profile of the broking process

- Local knowledge by a farmer and his willingness to use his property as a training venue, provided an opportunity for training brokerage.
- Trusted and respected local farmer had knowledge of needs of other farmers and local conditions and worked with the broker organisation to plan a program to meet those requirements.
- Local farmer used his extensive networks to ensure participation in the program, and to organise further training opportunities for himself and others.
- Broker organisation used newsletter and website to refer participants to other training as opportunities arose, on an ongoing basis.
- Depending on need, subsequent follow-up support provided on an individual basis by both the broker organisation and the local farmer.
- Main funding source is FarmBis, but beginning to explore different funding sources including fee for service.

What makes this a successful broking model?

While Biodynamic Agriculture Australia has a small broking role in addition to its core activities of training provision and sale of preparations, an interesting variation of the model is that organisation members themselves also act as brokers. Using members as brokers is an effective tool, because it allows the organisation to direct its limited human and financial resources towards delivery of training and provision of individual support, while at the same time matching training to training needs. The farmer does not see himself as a broker, but as a community-minded individual with a passion for biodynamic practices.

The features of the model are:

Identifying and supporting a local 'champion'
The farmer broker is enthusiastic, committed, and willing to use his knowledge and networks to secure and promote training for the benefit of his community. The Education Officer values the farmer broker, and the two maintain a positive and supportive relationship, with regular and ongoing communication.

Understanding local conditions and learners' needs
The farmer broker has lived in his community for many years and has a thorough knowledge of local conditions and the needs of farmers. He uses this knowledge to identify and engage potential course participants, and works closely with the Education Officer to negotiate and develop courses appropriate to their needs.

Chapter 6: Regional Skills Training Pty Ltd

Case summary

- A small but growing private Registered Training Organisation with a strong regional focus
- Trusted and credible regional coordinators as brokers are integral to the planning process
- Strong focus on accredited training largely funded by FarmBis, with some cost savings through local community support

Background

Regional Skills Training Pty Ltd is a private Registered Training Organisation (RTO), with the majority of activity based in various rural locations in South Australia, but with an increasing presence in most other states. It works primarily with the grain, sheep, beef, other livestock and equine industries.

A relatively new organisation, it has a staff of approximately 15, comprising employees and consultants, which is increasing as new opportunities and markets are developed. Its philosophy is to deliver cost-effective training; to be as flexible as possible by addressing issues relating to location, venue, childcare and other barriers to participation, particularly for females; and to ensure outcomes for individuals are relevant to their business. Regional Skills Training Pty Ltd uses local infrastructure such as community halls and schools as training venues, and relies on the goodwill of local communities to help provide other facilities and equipment.

Approximately 90% of the organisation's training courses are accredited and most are funded by FarmBis (AQF 4–6) or User Choice (AQF 2–3). Courses include: Certificate II in Agriculture and Certificate II in Horse Industries (school-based new apprenticeships); Certificate III in Agriculture; Certificate IV in Rural Business; Diploma in Agriculture; Diploma in Rural Business Management; and Advanced Diploma in Rural Business Management. It also offers non-accredited short courses in a range of areas, and facilitates good practice groups. Regional Skills Training Pty Ltd services up to 250 clients annually (accredited training) and 3000 clients annually (non-accredited training).

Identifying training needs

In general, the training needs of potential clients are identified through largely informal means, including face-to-face meetings with clients and information received from key clients or associates. As the managing director noted: 'People doing Cert IV's and Diplomas are all in a business, they know what they need'.

The approach was different for the newly introduced Certificate II in Agriculture, because, as the managing director explained, 'these kids really don't know what they want do they?' Individual needs must be matched to employment opportunities, and

course design needs to take account of changing local economic conditions. This requires the managing director to be 'out there in the community' and in contact with key industry and government representatives. The organisation's regional coordinators are also a key part of the process, in terms of being aware of opportunities and threats in their regions and feeding this information to the managing director. Identification of course competencies is determined after consultation with participants, employers, schools and the local community.

Engaging people

The organisation is a training provider that uses broking concepts to engage participants, by employing regional coordinators. One regional coordinator in the mid-north area of South Australia has her own farm business and was a former course participant in the Advanced Diploma in Rural Business Management. Her role includes identifying those within her local area who would benefit from the proposed training, and sourcing enough potential participants to make the course viable.

In the case of the Certificate IV in Rural Business, she was aware of the need in her community for business management training, particularly for female members of farm businesses. The regional coordinator made a short presentation at a kindergarten parents' meeting. Together with a Regional Skills Training Pty Ltd lecturer, she then organised a community information session, and promoted it through personalised flyers, school newsletters, community noticeboards and 'a bit of word of mouth'. Although a small number of people attended the first meeting, they were enthusiastic and undertook to target others they knew would benefit from participation in the course.

The leadership style and flat organisational structure of Regional Skills Training Pty Ltd encourage all staff to seek opportunities and 'create their own jobs because everybody is capable of making decisions and so we are always growing and having exciting new things happening ...' (managing director). This is an incentive for staff, including regional coordinators, to continue to scan the horizon for new areas of training need.

Identifying and negotiating appropriate training

The organisation develops and delivers its own training programs that are responsive to clients' needs in terms of location, timing and frequency. External experts are contracted to deliver modules as required (e.g. in the areas of human resource training and family meetings).

Planning and developing a training program

Regional coordinators are important in ensuring responsiveness to client needs. For example, they negotiate appropriate course times and venues, so they do not clash with other school and community events, and identify childcare options for course participants. They also have responsibility for providing information to lecturers on the appropriate mix of units of competence for first semester. This is coupled with the process of lecturers profiling participants at the beginning of each course to determine their skill and knowledge levels, and preferred learning style.

Although lecturers have ultimate responsibility for course design, delivery and assessment, they draw on the local knowledge of regional coordinators in the process.

For example, proposed participant assessments are discussed with regional coordinators who 'actually give me that really critical feedback ... as to where the objections [from a participant's perspective] might be and where the positives are' (lecturer's comment).

Evaluation and further training

Evaluation of courses indicates overall participant satisfaction. A course participant in Certificate IV in Rural Business described the course as relevant and specific to the needs of the group, 'when they're planning they'll take into account everyone's needs ... they didn't want to cover anything that we can find out ourselves or have access to already ...'. In addition, participants appreciate the way that assessment tasks become tools they can use in their own farm businesses.

Following completion of a course, the organisation undertakes a broking role by finding out what participants would like to do next and providing a pathway to other training programs. For participants in short courses, this could mean undertaking an accredited program. For others, it could mean facilitating their entry into courses not offered by Regional Skills Training Pty Ltd, such as degree programs. The managing director noted that '...any participant can approach me about negotiating credit into a degree and I'll actually go into bat for them ...'. In another example, the organisation developed the Certificate II (school-based new apprenticeship) program in such a way that 'they can get up to 50% credit ... into full-time ... on-farm traineeships when they finish' (managing director).

Profile of the broking process

- High-level training provision incorporates aspects of training brokerage.
- Regional coordinators employed by the organisation identify training needs, engage participants, and facilitate participation by removing barriers such as childcare. Coordinators are trusted and credible members of the community with extensive local and external networks.
- All members of the broker organisation have responsibility for identifying and matching local training and employment opportunities.
- Course participants drive the development of training programs, in terms of location, time, venue and frequency.
- Organisation works closely with participants to identify their further training needs and facilitate access to that training.
- Relevance of assessment tasks to farm businesses.
- FarmBis is major funding source, but the organisations utilises community support to keep costs down.

What makes this a successful broking model?

Regional Skills Training Pty Ltd is a high-level training provider that uses broking concepts to identify training needs and engage participants. Regional coordinators are employed to make training as accessible as possible to farmers, particularly females, and to work with lecturers to ensure the needs of course participants are met.
The features of the model are:

Selection and appointment of paid regional coordinators
These positions provide a critical link in matching training needs to training provision, by drawing on the local knowledge and networks of coordinators to target

and engage course participants. The fact that these are paid positions ensures continuity and reflects the importance of the role to the organisation. Selection of the right people, who were enthusiastic and proactive in identifying and engaging participants, contributed to the success of the model.

Organisational structure and leadership is an incentive
Organisational structure and leadership within Regional Skills Training Pty Ltd encourage staff to create their own jobs, including the number of hours they wish to work. This is an incentive for all staff, including regional coordinators, to continue to scan the horizon for new areas of training need, and to match that need to appropriate training provision.

Understanding learners' needs
As the first point of contact for participants, regional coordinators are well placed to collect initial information about learning needs and feed this through to lecturers. They are also well placed to provide feedback to lecturers on the appropriateness to participant needs of the mix of units of competence, and on the usefulness and relevance to students of assessment tasks.

Chapter 7: Department of Primary Industries, Water and Environment (Dairy Branch)

Case summary

- State government primary industry branch
- Brokerage is a team process built on trusting relationships with stakeholders from the early planning stages
- Availability and appropriate allocation of resources to planning is important

Background

The Tasmanian Department of Primary Industries, Water and Environment (DPIWE)'s Primary Industries Division comprises eight Branches, of which Dairy is one. The Dairy Branch is based on the north-west coast of Tasmania, and employs eight professional staff. Its role is to assist dairy farmers by providing services that stimulate, encourage and support development and growth in an environmentally responsible manner. It services up to 400 farmer clients and many more industry clients per year.

The Dairy Branch works in partnership with, and obtains funding for programs from several government and industry sources, including FarmBis and Dairy Australia, and also contributes financially to the development of programs. Staff deliver short-term training courses, coordinate field days, undertake benchmarking, and facilitate discussion groups and the production of a newsletter for dairy farmers. In keeping with institutional policy, Dairy Branch staff develop and deliver much of the training themselves, engaging external expertise as needed, and dependent upon the availability of funding.

Identifying training needs

In 2004, a two-day dairy industry strategic planning workshop organised by the DPIWE Dairy Branch, and involving all relevant dairy stakeholders, identified that there were not enough young people achieving in the industry. To address this issue, staff from the Dairy Branch facilitated an extensive process of needs analysis to determine the sort of training required.

Early in the process the Dairy Branch secured financial support from the DairyTas Strategic Advisory Committee (DSAC) which administers the Targeting Our Profitability (TOP) research and extension funding from Dairy Australia. Dairy Branch staff convened a planning meeting with DSAC members, and the young farmers who had attended the strategic planning workshop. Input was sought from the Share Farmers Association, and from farmer discussion groups facilitated by Dairy Branch staff. Information about what was happening in other states was also collected and presented for consideration.

At this meeting stakeholders began to develop an outline of the issues for young farmers that needed to be addressed. Notes were taken and later circulated for comment to all those who had attended. These notes became the draft outline for the proposed new program *Making progress for young dairy farmers.*

Engaging people

Advertising for the program was undertaken by the Dairy Branch, and included accessing databases of participants from previous young farmer training programs; the monthly newsletter; discussion groups facilitated by Dairy Branch staff; and one-to-one contact between Dairy Branch staff and farmers. Individual farmers who would benefit from the program were also targeted. In addition, paid advertisements were placed in the local popular rural press. The private consultant who was employed to work with Dairy Branch staff to develop and deliver *Making progress,* acted in a sub-broking role by recommending the program to some of his clients.

Making progress for young dairy farmers was also designed as a one-day workshop. Aware of the barriers preventing dairy farmers from participating in training, the Dairy Branch followed its usual practice of planning to deliver sessions in four different regional centres to cut down on travelling time, and running them between 11am and 3pm to accommodate milking schedules.

A total of 64 farmers participated in the program in four locations. The programs covered the following topics: the business environment; creating wealth; building skills; and net worth.

Identifying and negotiating appropriate training

A number of the issues that farmers and other stakeholders identified as being needed in the training program were outside the expertise of Dairy Branch staff, in particular, the focus on business management issues. They sought this expertise from a local private consultant with relevant expertise. As the training broker noted, involving the consultant in the very early stages of the project meant 'you get investment and commitment right from the start'.

The broker and private consultant had worked together over a period of some years in the development and delivery of a number of training programs for dairy farmers, and had built a substantial long-term relationship based on shared understandings and expectations, and mutual trust and respect for each other's knowledge and expertise. At one stage, the consultant had been an employee of DPIWE. The credibility of the private consultant reflected on the credibility of the Dairy Branch, which made selection of the right consultant important:

> *...people think they can deliver without being expert in the subject and I don't agree with that. If you get asked one question from farmers that you can't answer then you're totally discredited as a presenter ... we don't want to get into a field where we're hanging our hat on someone else's performance.* (Training broker).

Planning and developing a training program

One of the first tasks of the private consultant was to work with the training broker to help clarify and define the issues that had been identified at the first planning meeting of stakeholders. The private consultant reflected that the importance of this stage of the process cannot be overlooked:

> *Quite often people come to you and say this is what we want, but then we sit down and talk about it carefully [and] what they want might be slightly different to that or bigger or deeper...*

As a result, the intended focus of the program was broadened, from sharefarming as a route to farm ownership, to include a range of other strategies for making progress and creating wealth. This would allow the program to reach a wider audience.

Regular meetings were then held between the broker and the private consultant, to develop program format and content. The process of ongoing communication between the broker and the private consultant while the program was being developed, ensured that training content and format would meet the requirements of stakeholders.

Like nearly all other programs brokered by the Dairy Branch, *Making progress for young dairy farmers* was not accredited. BD from the Dairy Branch believed that accreditation did not necessarily guarantee quality or client satisfaction.

The broker noted the role of other stakeholders such as the Tasmanian Farmers and Graziers Association (TFGA) which had been involved in the earlier stages of the process in identifying the issues facing young dairy farmers. Their legitimisation or 'signing off' on program content once it was developed was an indication of broader industry support for the program. This meant that stakeholder groups were prepared to actively engage in promotion and awareness raising amongst their members.

Approximately 50% of the program was delivered by the private consultant, with guest speakers (farmers) providing illustrative examples of how they had dealt with challenges, and how they had progressed through the industry. Three Dairy Branch staff members were involved, primarily in hosting the event and in presenting some workshop sessions later in the day.

The broker and the private consultant emphasised that the strength of the program was its team approach to, and shared responsibility for, program planning, development and delivery.

Evaluation and further training

The Dairy Branch follows rigorous formal and informal processes of monitoring and evaluation of the training programs that it brokers. During delivery of *Making progress for young dairy farmers*, it was important to the process that the broker played an active role, even when not delivering.

> *If we're not presenting we're usually critiquing, keeping notes, trying to look at where we lose the audience or where they were really going good or where something didn't make sense even though you thought it might.*

Dairy Branch staff reported that feedback from participants indicated satisfaction with the outcome of the program, in that they gained a better understanding of the macro issues such as farm affordability and that the issues were not as difficult as they had thought. They also gained a greater insight into the link between farm success and their own skill.

Feedback also identified that further intensive support for younger farmers was needed. To address this need, a follow-up program is currently in the early stages of development by Dairy Branch staff, and is being planned to coincide with the next round of TOP funding. The planned follow-up program will provide one-to-one support to a group of 12 young farmers per year, to set and achieve their goals over a three-year period. It is likely the same private consultant will be involved in this second phase of the project because of his management and technical expertise.

In addition to developing their own follow-up programs, staff from the broker organisation are constantly on the lookout for other training opportunities for their clients. This involves alerting clients to training being offered by others, and where possible, organising funding for their clients to attend relevant sessions.

Profile of the broking process

- This broking model illustrates the overlap between training brokers who are also training providers.
- Industry-strategic planning exercise provided an opportunity for the industry to engage in training brokerage.
- Worked closely with clients to identify and define their needs and deliver on these, with the planning and development process driven by farmers.
- Involved all stakeholders early in the planning process, including the funding body and private consultant. This ensured broad stakeholder support and legitimisation.
- Broker organisation used own staff for the majority of developing and delivery of training, as required by institutional policy, buying in external expertise as necessary and dependent on funding availability. Sustainability is about accessing external expertise as needed.
- Built relationship with key training provider and had a thorough knowledge of his reputation and expertise. Relationship based on trust and mutual respect.
- Used range of strategies to ensure participation in the program, including targeting individuals.
- Broker and training provider worked as a team, sharing responsibility for program development, delivery and outcomes.
- Formal and informal monitoring and evaluation was a core part of training development and managing relationships with stakeholders.
- Built on previous program to develop the next one.
- Broker had thorough knowledge of its clients' situations and contexts and referred them to other training as opportunities arose.
- Allocation of resources is integral to the broking process.

What makes this a successful broking model?

Longstanding relationship with a credible and highly regarded training provider
The private consultant who provides the bulk of the training is well known by the broker, having worked in the broker organisation at one stage. His expertise, reputation and credibility are highly regarded. The credibility of the training brokered by the Dairy Branch is dependent on the credibility of the private consultant who delivers the training.

Brokerage is viewed as a team process
Training brokerage is viewed by stakeholders as a team process. Each partner has an investment in and commitment to the process, and shares responsibility for successful outcomes.

Carefully planned and managed process of training program development
The development of the training is carefully planned and paced, involving key stakeholders such as the funding body early in the project, to secure support and legitimisation. Surveying farmers' needs is an important early step in the process, as is early involvement of the private consultant who acts as an objective third party in helping to analyse and define needs, and to target program development accordingly. Regular meetings and ongoing communication occur between key stakeholders to negotiate and develop program content and format.

Understanding learners' needs
The Dairy Branch uses a wide array of strategies to link clients to other training, including databases, newsletters, discussion groups and personal contact by extension officers. Because it has a good knowledge of its clients and of the industry, it also targets particular clients for relevant training courses within and external to the organisation.

Extensive monitoring and evaluation
The Dairy Branch ensures programs that it develops are monitored carefully and evaluated rigorously, from both a participant and deliverer perspective. Feedback is then used to improve subsequent courses, or subsequent offerings of the same course, and to determine how clients' ongoing training needs can best be met.

Chapter 8: Solly Business Services

Case summary

- Small private consultant
- High level of trust in training broker and between training broker and stakeholders
- Timing of the process was important
- FarmBis was key source of funding

Background

Solly Business Services was established in November 2001 in Naracoorte in South Australia, by an agribusiness consultant and a training broker. The business employs two consultants and provides business consulting; coaching and mentoring; project management; education and training; and agritourism services. The clients include individual landowners, research and development corporations, and farmer associations.

The objective of the business is to support agribusiness development in South Australia. One of the functions undertaken to achieve this outcome is that of broking training activities to producers within the region. This is a commercially focussed activity, proactively identifying client needs and matching products and services; or developing relevant products and services to meet these needs. In undertaking this brokerage, the business takes the financial risk associated with offering training activities. As such, the business is very focussed on ensuring client needs are met, thus ensuring the business' on-going sustainability.

Examples of this broking role are where the business:

- Provides strategic planning services to assist farmer organisations to identify their own training needs (e.g. the local farming systems group).
- Matches existing training courses to clients' needs (e.g. through the coordination of Meat and Livestock Australia's 32 EDGE*network* training courses funded by producers and FarmBis).
- Facilitates producer learning through design and delivery of demonstration projects (e.g. Producer Initiated Research and Development projects (PIRDs) funded by participating producers and Meat and Livestock Australia).
- Develops and delivers new products and services to address the training needs of the business' core client base (e.g. the one-day workshop *Growing the farm business*; mentoring of Nuffield scholar applicants; hosting of New Zealand study tours; and delivery of an annual agribusiness seminar).

In March 2004, the training broker initiated, developed and delivered a workshop *Growing the farm business* to four different groups of participants. This case study details the training broker role played in engaging a national expert deliverer and a local facilitator and consultant to deliver a one-day workshop covering:

1. Generating profit and wealth—the fundamentals behind growing a farm business.
2. Options for expansion—benefits and pitfalls of ownership, leasing, sharefarming, equity partnership, off-farm investment.
3. Case study approaches.
4. Major considerations in growing the business—business structures, taxation, machinery, people and succession planning, natural resource management.

Identifying training needs

The major source of information on producer training needs, is clients and associates of the training broker business. Individual client requests, discussions with key industry stakeholders, and outcomes of group strategic planning meetings are all used to inform the training broker of current client needs. Where the needs can be met by existing products and services, those products are offered. When the needs diverge from products available in the training broker business or other organisations, the business analyses the potential viability of designing, marketing and delivering such a product to its client base.

In the case of the *Growing the farm business* workshop, a number of clients had been approaching the business, and seeking ideas and feedback on their options for business expansion.

> *I suppose it started about spring of 2003 (18 months prior to the workshop). The seasonal conditions were looking fine, commodity prices were good, and interest rates were attractive. All drivers were positive and you could see this was an opportunity from a farmer or client's point of view to have the dollars to expand their business.* (Training broker)

With this in mind, the training broker sought feedback from associates and clients, and used industry information to determine how this interest could be met.

> *I was doing a bit of verbal market research and some of the people you know they are wanting to expand their business, or at stage where they need to, might in passing say I'm looking at running a workshop on leasing and sharefarming, would you be interested in attending?*

By spring the following year, the training broker was confident there was sufficient interest in the topic for the firm to invest in developing and delivering a relevant workshop, and set about making it happen.

Engaging people

As indicated above, the process of obtaining feedback on the possibility of a workshop was a key method for engaging people in the course. This, combined with the business' detailed and specific knowledge of its clients, allowed it to target the

people and existing networks which might be interested. One such approach was made to a regional farmer association, a farmer-driven group of the Southern Farming Systems program of the Grains Research and Development Program.

The coordinator of the regional farmer association, a local farmer, said that the training broker had approached the group, saying he would like to organise such a workshop, and asked if the regional farming association would like to have a workshop run specifically for its members.

> *At that stage one of the objectives of the group was to be involved in the farm management rather than just the production side of business and we thought it would be very worthwhile for the group. I think it is nice from a farmer point of view that you have someone there who is thinking of your needs out in front of you.* (Local farmer)

In addition to working with the McKillop group, the training broker directly targeted its existing client base through personal invitation. The workshops were also promoted via the media and local networks. Feedback from participants indicated that the personal invitation from the training broker was the trigger for a decision to take part:

> *I'd heard about it on the radio, and seen it in the newspaper, but when I got the invitation from the training broker I registered my interest there and then. He knows my business and what I need, and he wouldn't ask me to something that wasn't worthwhile.*

For the accountants and bankers, the opportunity to learn more about an important topic, and to network with existing and potential clients, also triggered them to register interest. Once the first two workshops had been completed, there was still interest in another, and the word of mouth within the community created demand for two more workshops to be run.

Planning and developing the training program

While the idea for the workshop had been in the mind of the training broker for some time, the publication of a recent research report on the proposed workshop topic written by a national expert, provided the content required for a successful training program. The training broker decided to invest in developing a new training product:

> *In the first instance I had to contact an RTO to auspice training or access FarmBis funding on our behalf, and also following their agreement to do that, I went into looking at designing the workshop content, and also contacting the report author to see if he would be the key deliverer, given that he is a nationally recognised authority in those areas.*

The deliverer, who had been promoting the topic of leasing and sharefarming throughout Australia for at least 10 years, had met the training broker many years before, and 'felt good about working with him'—particularly in terms of their combined ability to develop a workshop which met producers' needs. With agreement from both the RTO and the deliverer, the training broker sub-contracted the consultant

and worked with him to develop the program content, while also seeking input and feedback from other key stakeholders.

The workshops were marketed early in 2004 and run in February and March of that year, when producers had the time and the financial confidence to take part.

> *We ran the first workshop in February—producers had finished their harvest, their finances were complete—their income from harvests whilst they may not have received all the money it was in pools or forward sold, and they knew their financial position—whereas if we had run it 3 months earlier would have been a bit hesitant.* (Training broker)

Evaluation and further training

The workshops were adapted and developed from one to the next, based on the feedback and questions from participants. Changes were made to each successive workshop, addressing participant concerns and refining the workshop program. Strong demand for the first two workshops resulted in a further two being offered, with a total of 85 participants taking part over a four-week period.

While the training broker was aware of the opportunity for 'licensing' the workshop to other deliverers in other regions, at the time of interview this opportunity had not been exploited. As the core focus of the business was on delivering services within the Naracoorte farming region, this had been fulfilled by the workshops, and the process of extending them into other regions was not straightforward. No formal networks or relationships existed with other similar consultants in other regions, and the mechanism for expanding the delivery more broadly—and profitably—was unclear.

Profile of the broking process

- The key to the process is developing trusting relationships with stakeholders.
- Identify the training need and want (18 months prior).
- Scope the possibility of addressing the training need (on-going, leading up to the workshop).
- Assess the financial viability of addressing the training need.
- Identify how the training need could be most easily addressed (using an appropriate trainer and publication), and determine the best time to do so.
- Access funding from FarmBis by auspicing through a Registered Training Organisation.
- Develop the training product in collaboration with key stakeholders and the contracted trainer.
- Contact key networks (e.g. the regional farmer association) to assess interest in partnering in workshop delivery.
- Promote the training opportunity (direct mail, general media).
- Deliver the training, evaluate and modify in response to participant feedback.
- Re-run the workshop to meet demand.
- Awareness of opportunities for expansion of delivery more broadly. but mechanism for achieving this was unclear.

What makes this a successful broking model?

First-hand knowledge of what training is needed, when, and in what form

The long-term relationship between the training broker and the potential participants and key stakeholders in the training workshop ensured that the content, delivery, timing and relevance of the brokered activity was strongly aligned with participant needs. First-hand experience of producer issues, plus feedback from other key stakeholders, such as banks and accountants, provided an excellent mechanism for determining training needs and potential interest. When the training broker was asked to identify the key to being successful, he said 'make sure there is a need'.

The ability to recognise when this need was ready to be acted on, was also critical. According to the trainer, the timing of the course was very good. This may have been because not only was there a 'need' for the training, but also a 'want' for the training.

> *People were more positive about making changes. They were ready to do the things I wanted them to do in the 90s, but at the time people didn't do these things because they didn't have the funds and the positive attitude needed to make change.*

Employing the best trainers

This training broker is effective because of his knowledge of who could best address the client needs, and how this person could be used to deliver an effective training opportunity to producers. As the broker said 'try and find the best possible people to do it, don't settle for who is up the road'.

Many participants commented on the benefits of having access to the leading expert on the topic in Australia, via the workshop.

> *The trainer was fantastic—his background knowledge, his understanding of farming, plus the legals and the tax—if you have all of that you are pretty much there.* (Participant accountant)

> *To have a person of his calibre provide the information was very important.* (Participant farmer)

The financial imperative— obtaining a return on investment

The training broker's requirement for profit (and sustainability) helps to drive the brokerage process to ensure firstly, that the training addresses clients' needs (so that they will participate), and secondly, that participants register (to provide a return on the investment of addressing the training need). For the *Growing the farm business* workshop, two workshops of 20 participants were required to break even. The ability to deliver more than two workshops moved the activity into profit.

The commercial imperative also requires that the participants gain a benefit from participation, which is greater than the cost of the workshop. If this is achieved, participants are more likely to continue to enrol in further activities offered by the training broker, providing business sustainability. This commercial process of investment, income generation, and provision of value can foster the creative and pro-active development of training opportunities.

First-hand knowledge of who would benefit from the training
The broker's knowledge of the specific clients (farmers, accountants and bankers) who would benefit from the training opportunity on offer resulted in a high proportion of registrations of potential participants. An analysis of participants showed that of the 85 attending, only eight were not previously known to the training broker. The training broker's networks and recognised integrity within the rural community were a critical factor in ensuring participation.

Quality control of the training provision
Delivery of a quality training activity is critical for the success of that particular training activity, and for the broking of future activities. The flexibility to adapt the content and process to meet client needs was part of ensuring quality delivery.

Chapter 9: Fitzroy Basin Association

Case summary

- Natural resource management regional association with multiple stakeholders
- NRM outcomes enhanced because of organisational structure and resourcing that facilitates sub-broking at the local level
- High level of awareness of its role as a training broker
- Initial focus on FarmBis funding has given way to exploration of alternative funding sources for follow-up training.

Background

The Fitzroy Basin Association is a not-for-profit community organisation in Central Queensland with multiple government, private and community stakeholder groups. The area covered by the Association includes agricultural land (vegetables, fruit, grain, beef, cotton) and the Great Barrier Reef.

The Fitzroy Basin Association promotes sustainable development through Integrated Catchment Management processes, providing extension and advice to landholders and other stakeholders as required. It has played a major role in developing a blueprint for future sustainable development, in the form of the *Central Queensland Strategy for Sustainability—2004 and beyond*. The plan ensures rolling investment in natural resource management and reflects a commitment to ongoing education and training. Linked to this is a Priority Action Proposal that identifies the adoption of sustainable grazing systems on farms within target catchments, and the development of methods including training, to achieve this adoption.

Approximately 40 staff are employed by the Association, both directly and indirectly, through its sub-regional organisations. One of its key sub-regional organisations is the Central Highlands Regional Resource Use Planning Project (CHRRUPP) which is funded by the state and Australian governments through the Fitzroy Basin Association. It is active in identifying ongoing individual and community needs, and in providing support, as well as sourcing and developing training, to meet those needs.

Identifying training needs

The trigger for development of a specific program, *Cattle and Catchments*™, and for subsequent ongoing support and training provided by CHRRUPP, was an independent evaluation of a 2002 Fitzroy Basin Association project indicating the need for training that would integrate production and conservation objectives. Because there is a high proportion of graziers in the area, this group in particular was targeted for training.

Engaging people

Two specific catchment areas were targeted for the pilot *Cattle and Catchments*™ programs: Comet (2003–04) and Lower Fitzroy (2004–05). These areas already had established catchment groups that could help to engage others, and had well-developed linkages to other groups and networks. Also, there were a number of landholders in the Comet catchment in particular, who were likely to be receptive to the proposed program, because of their age (30–40) and because they had already undertaken courses addressing similar concepts delivered by a regional private training provider.

Strategies to engage participants included direct call/mail to key graziers; using existing clients to approach neighbours; roadshows; and a free introductory field day on a local property that provided a 'taster' for the program. At the local level, the coordinator of the Comet catchment group used her networks to engage people. The training provider contracted to develop and deliver program materials also targeted some of his clients for participation.

The CHRRUPP project undertakes a very localised and targeted sub-broking role, engaging people in ongoing activities following completion of *Cattle and Catchments*™. The managing director of CHRRUPP, herself a local grazier and a member of the Comet Catchment group, which was active in helping to engage graziers in the *Cattle and Catchments*™ program, reflects:

> *We are very conscious of the level people are working at now because we've worked so closely with everyone here so we can almost anticipate the sorts of things that we need to provide for them to the next level ... We're constantly reviewing and assessing the needs of our community.*

Identifying and negotiating appropriate training

The Fitzroy Basin Association and its sub-regional body CHRRUPP, have a clear understanding that their role is to match training needs to training and to do that, they do not have to be experts in all areas.

Planning and developing a training program

In developing the *Cattle and Catchments*™ program the broker approached a private regional training provider who had delivered a number of courses to landholders in the two target catchment areas, and who had a good reputation locally for achieving results in terms of change management. The broker and training provider had an established relationship over a number of years.

The starting point for development of the program was the use of existing training provider material from a workshop on cattle production, as well as a module that the Fitzroy Basin Association had developed on catchment management.

The process was then one of regular round table team meetings, with two or three staff from both the training provider and training broker. Early meetings were about defining program objectives and finding common ground. Subsequent meetings were about negotiating content and format of the new program, to meet the objectives of the broker and the needs of graziers:

> *The whole deal was that the negotiation was easily understood by both parties ... We were on the same wavelength all the way ... what we did was keep supporting each other's ideas'* (Training provider)

The training provider organised funding through FarmBis, and the program has since been trademarked by that provider. Although the two pilot *Cattle and Catchments*™ programs were not accredited, subsequent offerings will be accredited.

Cattle and Catchments™ comprises a free introductory field day on a local property; a two-day workshop focussing on topics such as catchment management, ecological services, grazing and nutritional management, and property development; a visit to each farm business; and a follow-up field day comprising a bus trip to a grazing property and a research station.

Following participant, broker and provider evaluation of the first workshop in the Comet catchment, staff from the training broker and training provider organisations had another round table meeting to discuss and agree on modifications for the second offering of the course. A number of changes were made to the program before it was piloted for a second time in the Lower Fitzroy catchment. Changes included the introduction of more material on catchment management, property planning and vegetation management; use of more localised examples and information, and better integration of the *Cattle and Catchments*™ material. Integration problems were also overcome by having the training provider delivering the whole second program.

In addition to *Cattle and Catchments*™, CHRRUPP has organised a number of other workshops for graziers in its region, sometimes facilitated by its own staff, and sometimes by external experts. The group's extensive networks and positive relationships with a variety of government agencies and private consultants allow it to access external expertise, often at no cost other than reimbursement of expenses. This keeps the cost of training down.

Farmers interested in water quality monitoring on their properties are assisted by CHRRUPP to complete an appropriate module from Certificate III in Agriculture. The module was developed jointly by a nearby Registered Training Organisation, together with the Integrated Area Wide Management Group. CHRRUPP's role is to engage enough participants for a course, and to organise a suitable date and time. It also assists participants with course costs. On completion, course participants receive a Certificate of Attainment.

Most workshops and training opportunities brokered by CHRRUPP are funded from within its budget and external sources such as FarmBis are not approached for funding. Because of this, cost is and will continue to be an important factor, with fee for service options being considered:

> *I anticipate that the kind of workshops we run down the track might involve a minimum cost to be met by some of our course participants ... given it's something they want they are happy for us to coordinate it and pay a minimum cost.* (Managing director, CHRRUPP)

Evaluation and further training

Nineteen farm businesses participated in the *Cattle and Catchments*™ pilot program in the Comet catchment, and 11 in the Lower Fitzroy catchment. Team building and networking opportunities fostered by the course were particularly valued by participants. Both pilots, but particularly the one in the Lower Fitzroy, reported the adoption of new practices by graziers in terms of operational and management activities, and future planning. Overall, from the two courses there were 18 applications from farm businesses for incentive funding made available through the Fitzroy Basin Association Neighbourhood Catchments Incentive Scheme.

One of the most exciting developments that followed the *Cattle and Catchments*™ pilot offered in the Comet catchment area, was an increase in the amount of localised support and training coordinated by CHRRUPP and described in the previous section. This was facilitated by the provision of funding for an additional full-time training and extension position.

Profile of the broking process

- Independent evaluation of an earlier Fitzroy Basin Association project indicated training need.
- Broker approached a highly regarded regional private training provider with extensive experience and a reputation for obtaining results.
- Broker had responsibility for engaging people using a range of strategies, including a free field day as a 'taster'.
- FarmBis funding was organised and managed by the private training provider who had extensive experience in this area. For follow-up training, there is exploration of alternative funding sources, including fee for service.
- Training program was based on an existing and proven package developed and used by the provider, and a module developed by the broker.
- Formal process of negotiation of training content and format, comprising round table meetings between broker and training provider staff.
- Results of rigorous evaluation of the first pilot workshop by participants, broker and provider, revealed a number of changes were needed. This feedback initiated further meetings between broker and provider where extensive changes were made, before the workshop was piloted in a second location.
- The broker contracted a sub-regional body to provide intensive support and broker further training for graziers at the local level, and to ensure targets identified in the local Priority Action Proposal would be met. Staff from this body are locals, who are known and trusted by the community.

What makes this a successful broking model?

Uses reputable training provider with track record of success in the area

The private training provider selected to develop and deliver *Cattle and Catchments*™ had an extensive knowledge of clients and their needs in the local area, and had extensive experience in training delivery. He came from an organisation with a widespread reputation for achieving outcomes in terms of change management.

Uses multiple training providers
The broker actively sought opportunities to work with both government and private sources, noting that 'It's challenging for us in this broker role to work with multiple service providers who are competing for often the same funding source'. It objectively reviewed and trialled different change management strategies and training products from a range of sources, to best meet the needs of landholders and other stakeholders.

Takes existing, successful program and modifies it to meet identified needs
The broker actively and consciously 'takes the best from a lot of things and tries to mould them in a new direction'. It has 'the ability to integrate and cherry pick some of the better opportunities that are there'.

Carefully planned and managed process of program development and evaluation
The broker followed a careful process of program development and evaluation, characterised by regular, formal round table meetings with the training provider, and a process of negotiation that was understood by each of the parties. Following program development and delivery, both the outcomes of the training and the broking process itself were evaluated. Again, a formal meeting was held, comprising two or three staff each from the training broker and training provider. Each group had prepared its own evaluation notes which were shared during the meeting. Evaluation of the broking process included a review of the flow of communication between stakeholders (where it worked well; where it was not so successful), and identification of the importance of clarifying the specific roles and responsibilities of each party. This information was included in a Final Report to the project funding body. Most importantly, the written documentation could be used by the broker and others in facilitating subsequent broking activity.

Undertakes rigorous evaluation and acts on it to make training more responsive
The broker acted on the evaluation of the first *Cattle and Catchments*™ pilot program, by making substantial changes as required. This willingness to admit when something has not worked as well as expected, and to change it to better meet the needs of clients, is a key characteristic of an effective training broker.

Structure of the organisation facilitates sub-broking
The broader broking role of the Fitzroy Basin Association is complemented by the localised sub-broking role of CHRRUPP, which provides a critical link between graziers and the Association. CHRRUPP is responsible for onground implementation of the Priority Action Proposal in the Central Highlands region of the Fitzroy Basin. This includes providing support and coordinating ongoing training that is specific to the needs of its graziers. The group's activities are funded by the state and Australian governments, under a sub-contractual arrangement with the Fitzroy Basin Association, and it reports directly to the Association Board. At the same time, it has considerable autonomy in determining how its funds should be utilised to best support landholders to meet target outcomes. The effectiveness of CHRRUPP is enhanced by its locally based staff with extensive networks within and outside the community.

Awareness of their roles as training brokers
The Fitzroy Basin Association in general, and CHRRUPP in particular, are very conscious of their roles as training brokers, and are proactive in identifying training needs and matching them to appropriate training.

They also have a clear understanding that they do not have to be experts in all areas, but that they need to be able to engage expertise as required. They value and respect the expertise of others.

Chapter 10: Victorian Grains Industry Training Network

Case summary

- Grains industry training group with membership of farmers, providers and other stakeholders
- Has a paid coordinator to broker training
- Deliberately acts as a training broker
- Has access to a variety of funding sources

Background

The Victorian Grains Industry Training Network (VGITN) was established in the mid-1990s as the result of an assessment of skill needs in the grains industry. VGITN's purpose is to bring providers and farmers together so they can exchange information about training needs and match training to needs; it very deliberately acts as a training broker. Committee membership is around 20, with a management committee of nine farmers and training providers, along with stakeholder members from the Victorian Farmers Federation (VFF), the Department of Primary Industries (DPI), Rural Finance, and Partners in Grain, an industry body.

VFF funds VGITN, and DPI provides in kind support. They source project funding as appropriate opportunities arise. Membership is generally open to anyone who is interested. Once people join, they tend to maintain an active commitment. The chairperson, always a farmer to avoid conflict of interest, rotates each two years.

A paid coordinator (0.6 full-time equivalent) is shared with Partners in Grain (0.3 full-time equivalent). VGITN's target audience is grain farming enterprises in Victoria. There are approximately 150 enterprises on its database, although all are welcome at activities it brokers. It should be noted that these enterprises also have further networks for sharing of information and participants are encouraged to let their neighbours know.

VGITN brokers 10–20 courses per year, involving up to 400 participants. The value of the training brokered varies according to the type of program delivered, from high-cost programs such as the one on gene technology in Canberra for which the cost was $750 per participant, to information workshops such as the one on stubble management where the cost was only the time of the presenter, which was donated. The value of training brokered by VGITN is estimated to be $200 000 per year.

In 2003 VGITN commissioned a report on the types of people required for employment on Victorian farms. Groups of farmers throughout the state were asked whether they had a need for new employees; how long those employees would be required; the tasks to be done; and whether employees should be skilled or unskilled. This was followed by a conference on training needs. VGITN responded with a major

review of its operations and has changed direction, resulting in several new training initiatives.

Identifying training needs

One of the training initiatives that can be traced back to the 2003 report and which followed the conference, was the course in Header Operations. There was a general recognition amongst farmers that there were not enough skilled people to operate headers at harvest time. The largest header contractor in the district approached VGITN, recognising that he was having trouble finding people to employ, and was constantly training people who would leave at the end of one season. VGITN had identified that 'farmers were getting older, leaving the industry, and we needed young, capable people,' and the need to increase skills in machinery use. It decided to broker a practical, hands-on course in driving and operating big machines, because VGITN members thought such a course would appeal to local young people and meet the identified skills gap in the industry.

VGITN acts to identify needs in informal ways as well. The coordinator and the members of VGITN are active in multiple networks in the Victorian grains industry and in their local communities. They listen as people talk, and seem to be constantly alert for opportunities to advise people about learning and training, formally or informally. A provider member of VGITN, for example, often puts people in contact with the right kind of training through her informal networks at the football or at functions at the school her children attend. The training she recommends is not restricted to that run by her institution.

The VGITN coordinator has developed an excellent understanding of the 150 or so grain farming families in Victoria that she serves through many years of work in training in the industry. She is aware of their experiences as learners, and sees each individual as being on a learning journey. She knows who is ready to do a company directors' course and who should do a TAFE course if they are joining a board. She makes assessments of those who are not yet ready to cope with that level of formal training. She pushes people on to a new learning challenge when she thinks they are ready, often emailing, faxing or phoning when an opportunity comes along that she feels is right for that person.

Engaging people

Building relationships is the key to VGITN's success at engaging people in training, as is a track record of facilitating training that is relevant and accessible. VGITN has a high degree of credibility amongst farmers in the grains industry, earned through careful matching of people to courses, and a flexible approach that includes negotiation, so that training meets the needs of participants.

The coordinator's personalised service extends to her methods of communication. She knows who is comfortable with email and who needs words of encouragement on the phone to prompt them to attend a course. She has different email and fax lists for people at different stages on their learning journeys, grouping those with like 'next step' profiles. Other members of VGITN are also constantly on the lookout for people to engage in learning. One member noted that many people are prepared to travel outside their area to attend a course, but do not like to go unless they know somebody else who is attending. She described ringing somebody and saying, 'Look, I know

there's somebody in another town who wants to go to that course you want to go to, why don't you go and have coffee together and then see if you both want to go to the course together?'. And that is exactly what happened.

The initial offering of the course in Header Operations was a pilot with only eight places. There were 30 written applications from young people, who found out about the course by word of mouth. There were also phone calls from interstate and from RTOs wanting to put their students through the course.

Identifying and negotiating appropriate training

VGITN's first strategy for meeting identified training needs, is to 'signpost people into things, we don't provide what is already there' (coordinator). If a suitable program is available, but not in the right place, or at the right time, the coordinator negotiates with the provider to make it accessible to VGITN's grain farming target group. In one example, a TAFE college was persuaded to run a company directors' course for women on boards one day per week, off campus, in a suitable location for the women.

Planning and developing a training program

VGITN has no trouble attracting providers, farmers, or other members, and encouraging them to attend the four or five meetings held each year. This mix of people on VGITN is important in developing a wide network of information about needs, potential providers and trainers; their quality, capabilities, and funding sources. VGITN has brokered a number of innovative courses on diverse topics, from succession planning to technical skills.

The course in Header Operations brokered by VGITN illustrates how wide networks, and a focus on needs rather than existing courses, can produce excellent outcomes for trainees, the industry and other stakeholders; in this case, the header contractor and several providers.

Once VGITN had decided to broker a course in header operations, it asked the coordinator to source funding to employ someone to prepare materials. The VGITN committee suggested that the coordinator should talk with the harvesting contractors' association to ensure that the course met industry needs. The association was initially suspicious that a licensing system could be imposed on it, but came to realise the benefit of developing a skilled pool of operators. An outcome of the coordinator's discussion was to obtain funding from a machinery supplier to prepare a manual. Another was that the course incorporated a driver's licence for driving the large machines on public roads.

A group of farmers, header contractors and three RTOs met to decide on the skills that were necessary for the new entrant group targeted. The coordinator linked the identified skills to competencies. There were six competencies from levels two and three of the Agriculture and Horticulture Training Package that covered the skills. As well as technical aspects of using machinery, and crop harvesting, they included occupational health and safety, 'because that's absolutely fundamental given the machinery for header operations', and workplace communication, 'because of the talk back communication whether you're buying parts or dealing with the farmer whose place you're cropping'.

VGITN recognised that the deliverers of the training had to be credible, and set about organising those best equipped to deliver the training outcomes they expected. The contractor who had initially approached VGITN was identified as the most expert and credible potential trainer, but he had no experience in this area. At first VGITN was quite keen just to provide the course, and was not interested in delivering accredited training. However, it found that it was much easier to obtain funding if the course was accredited, because standard VET system funding could be obtained. VGITN sought expressions of interest from RTOs in delivering various components of the course. Special pilot funding had to be negotiated with the Victorian state training authority because occupational health and safety issues meant that the break even class size of 15 was not possible. Small additional amounts of funding came from industry groups including Partners in Grain.

Two of the universities that are members of VGITN expressed an interest in hosting the course as the RTO, and the VGITN committee selected one of these. A trainer from the university delivered the theoretical and occupational health and safety components. The contractor provided the practical component of the training in his shed, using his own equipment. The contractor, a little reluctantly, obtained a Certificate IV in Workplace Training and Assessing so he could do this. The RTO trainer mentored the contractor during the header course. The RTO trainer learnt technical details from the contractor, 'the importance of where you set the comb and why the comb varies for different crops'. The contractor learnt practical training strategies, 'phrasing the questions... pair them, two off to go and check the wheel bearings together, rather than have the eight stand around'.

The course was conducted three times under two different formats. The first was for people from the local area who were not involved in any other training, and ran for a week. The second two were slightly shorter courses for people who were already enrolled in various certificates with TAFE colleges and other RTOs in Victoria. These were shorter because the participants had already completed their occupational health and safety training. The accredited providers, either the university or representatives of the RTOs whose students attended the last two offerings, mentored the header contractor who was delivering training. Those RTOs also decided it was preferable to outsource this training rather than attempt to provide it themselves.

The course was conducted during winter when people were not needed for work on farms, and the machinery was available for training. The workplace aspects of the course were assessed the following harvest season.

VGITN is very accomplished at promoting ownership of training amongst providers, participants and the industry. For example, at the end of the first header course they held a barbecue. All the trainees and their parents attended, together with the trainers and the VGITN committee, with the intention of giving everybody ownership of the course.

Evaluation and further training

From all reports the course in Header Operations was highly successful. The trainee interviewed found it was what he expected: interesting and highly useful. Like the other seven students in the pilot course, he was subsequently offered employment

with the contractor. The fact that the course was relevant, with an appropriate amount of hands-on activity and linked to real jobs, made it 'a real winner'. VGITN owns the course material and its intention is to sell it to other providers for use in different locations, as well as running more courses locally.

VGITN is using the header course as a model to develop a course on advanced boom spraying. This will not be an accredited course as the market is different. It is targeted at farmers who already have some expertise in boom spraying, and will be combined with an opportunity to update chemical certification for those who are willing to remain for some additional hours beyond the boom spraying component.

Profile of the broking process

- Wide representation on the VGITN Committee from farmers, providers and stakeholders.
- Active committee with members who also see themselves as training brokers.
- Formal identification of industry training needs.
- Building of trusting relationships as the key to engaging people.
- Awareness of available training and capabilities of providers.
- Systematic involvement of stakeholders in designing courses to meet identified gaps.
- Facilitation of collaboration amongst providers and with other groups such as the harvesters' association, to acquire the best possible training experience.
- Preparedness to look outside the square, for example, for funds, trainers and venues.
- Brokerage funded through industry (VFF).
- Knowledge of where potential learners were on their individual learning paths, provision of individualised guidance and the building of learners' confidence to progress on their journey.
- Recognition of the need for a mechanism for expansion, in terms of selling the course to other providers.

What makes this a successful broking model?

VGITN is identifying and filling gaps. It is looking to see what is available. It is aware of skill needs, and by whom those skills are needed, and it matches the gaps with provision. One measure of the success of VGITN is the fact that everybody continues to be enthusiastic about attending meetings. There are providers who are motivated, and previous chairs who are still very active members. This enthusiasm is because VGITN is highly relevant to its members, be they farmers who require access to quality training for the industry; providers who must have a finger on the pulse of industry needs; or other stakeholders such as DPI. Members know they are part of a very successful organisation. VGITN is also prepared to reflect, and change what it is doing. The features of this successful model are:

Having a paid coordinator

The course in Header Operations would not have been possible without having the resources of a paid coordinator to help source the funding to produce materials and select the highly effective combination of trainers. The coordinator maintains a database of potential participants and their needs.

Networks and continuity

The benefits of continuity of the organisation and the person employed as coordinator are evident. The networks of the coordinator and the VGITN members were important in negotiating the delivery side of courses, including the succession planning and header courses. It has providers who are very enthusiastic members of the network. The relationships that the coordinator and members have established over time in the industry and the community, attest to VGITN's credibility with learners.

Proactive planning and negotiating

The way VGITN decided to broker the course in Header Operations—very systemically and strategically—was a key factor in the success of the course. VGITN had identified a general skill gap in operating machinery, the need for courses for young people, and a specific recruitment and retention issue regarding header operators. Consultation with header companies, the careful, informed selection of multiple trainers, and negotiation of content, is further evidence of strategic planning. VGITN is seen as credible by the providers and is skilled at ensuring that providers collaborate.

Understanding learners' needs

The coordinator is proactive in dropping personally selected and targeted 'tit bits' of information about training activities to people as emails, phone calls or faxes. She not only knows the needs of potential participants, but also builds their confidence as learners. There are many examples of subtle ways in which all members of VGITN 'sell' the idea of training. The breadth of committee membership ensures that VGITN understands emerging industry needs, often before potential learners, and so training is pre-identified.

Understanding the process of broking

VGITN members realise that they are brokers and deliberately act to achieve good training outcomes for people in the grains industry. They have a good mix of formal and informal networks, and there is evidence not only of VGITN itself and the coordinator acting as brokers, but also of other VGITN members acting as brokers in their own right. VGITN is a one-stop shop. Not only can VGITN assist in finding the most suitable training, but it will also help with grant applications if there is a need for funding, for example, through FarmBis. VGITN will assist institutions in locating people to conduct courses, or redesign courses to suit the needs of the grains industry. It will also assist in organising viable class sizes, as the result of networks with organisations like Partners in Grain, VFF and even Neighbourhood Houses.

Chapter 11: Discussion of results

Introduction

This chapter is presented in four sections, relating to the first four objectives for this research, which are to:

- Map existing training/learning brokerage arrangements in Australian primary industry.
- Investigate the outcomes for primary producers of these training/learning brokerage arrangements.
- Identify features of effective brokerage arrangements and inhibitors to effective broking from the Australian primary industry experience and from arrangements in other industries and overseas.
- Derive a series of models of effective brokerage arrangements that apply to learning activities for various sectors, groups and issues in primary industry (e.g. commodities such as grains, producers from non-English speaking backgrounds, natural resource management).

The chapter will consider findings from the telephone survey and case studies, and will link these to the literature. For the purposes of this discussion, the six case studies will be abbreviated as follows: Biodynamic Agriculture Australia (BAA), Department of Primary Industry Water and Environment (DPIWE), Fitzroy Basin Association (FBA), Solly Business Services (Solly), Regional Skills Training Pty Ltd (RST), and Victorian Grains Industry Training Network (VGITN).

What existing broking arrangements are there in Australian primary industry?

This section considers findings from the telephone survey, in terms of the three broad types of organisations involved in brokerage. It discusses how organisations can be further classified according to the clustering of broking activity, and considers the results of the mapping exercise that analysed broking activity by industry and scope (geographical location). The section finishes with a discussion of the role of training providers as brokers, and the effect of different funding sources on broking arrangements.

Three types of organisation

Chapter 3 (Methodology) reported how the organisations surveyed could be classified as three types—not-for-profit (NFP), commercial, and government agencies—and that approximately half the sample were NFP organisations. The findings indicate that the nature of their broking practices is linked closely to the context in which the organisations operate. Specifically, the key differences between these organisations in terms of their broking arrangements were related to how they informed their clients of training; client characteristics; the number of clients serviced annually; the size of the organization; and the focus of the training.

Although each of the three organisation types identified primary producers as their key client group, there were differences in other target client groups. For example, commercial organisations identified agribusiness as their second major client group,

which is not surprising, given the strong focus of commercial organisations on facilitating education and training to increase farm business profitability through improved business management practices. For the other two organisation types—NFP and government—which are more likely to facilitate training in primary production, there is no one identifiable second major client base, but rather a range of groups. Farmers groups/organisations are a target client group of government organisations, and NRM organisations a target client group of NFP organisations. Again, these target client groups are to be expected, given the traditional and long-standing linkages between government agencies and farmer organisations, and the growth of not-for-profit regional organisations with responsibility for developing and implementing regional NRM strategies.

In terms of how clients are informed of training opportunities, both government and NFP organisations use flyers and newsletters as key tools, while commercial organisations use one-to-one contact as their method of contact. This may reflect the focus of commercial organisations on securing return on investment and on maintaining market share, by ensuring that marketing of programs is targeted very specifically to likely participants, and is similar to findings reported by Kilpatrick and Bound (2001) re market-focussed brokers. Additionally, because government organisations are typically the largest of the three types of organisation (in terms of employees, number of clients serviced and number of training events organised), strategies such as flyers and newsletters allow for a greater coverage of the potential participant base; greater economies of scale; and help to ensure all clients are fully informed with regard to available training opportunities. This is in keeping with the broader public service role of government agencies.

Survey findings showed that the various organisation types were all represented amongst the most active brokers, although there were fewer commercial enterprises. This may be due to the fact that commercial organisations operate in competitive environments that inhibit the sort of collaboration required of active brokers. The fact that the most active training brokers fall largely within the categories of government or NFP organisations (mainly industry bodies), is consistent with Kilpatrick and Bound (2001), who identified these two groups as having the characteristics required of effective brokers in rural industry, including broad networks and the ability to facilitate access to resources.

Four types of broker-related activity

Chapter 4 (Results) reports the three major clusters of broking activity that emerged from the analysis: client; provider; and other stakeholder (networking) activities. These are useful tools for analysing different patterns of broking activity according to the emphasis placed by organisations on relationships with key stakeholder groups.

Organisations that are the most active in terms of client interaction are all primary industry focussed (as opposed to natural resource management focussed) and likely to have larger numbers of employees. Their key activities are likely to include training and extension. Given this focus, it is not surprising they undertake comprehensive and targeted needs analysis and use a wide range of methods to inform and advise their clients of training opportunities. Government organisations are more likely than commercial or NFP organisations to be client active, and it is suggested that this is partly due to the fact that a number have been broking for many years, have

established strong and trusting relationships with their client base, and are likely to have some stability and continuity in terms of staffing and resources.

Organisations that are the most active in terms of interaction with training providers are likely to be orientated towards primary industry training (as opposed to natural resource management or general topics). Most commercial organisations are included in provider-active clusters, which is not surprising, given the need to position themselves at the cutting edge of education and training. In order to maintain market share, they have developed wide training provider networks. Interestingly, the findings suggested that provider-active organisations are more likely to broker unaccredited training, although it is unclear why this might be the case, given that training subsidies appear to be more readily available for accredited training.

The findings indicate that effective brokerage relies on developing and obtaining access to a wide range of networks, beyond training providers and clients. Specifically, there are two sub-groups of stakeholder activity: network contact activity and networking behaviour. Organisations with the widest range of contacts were government agencies in particular, and larger organisations in general. This fits well with findings from Kilpatrick and Bound (2001), who identified the ability of government agencies to build the conditions that allow groups and organisations to collaborate. In addition, it is suggested that larger organisations have the resources (human, financial, time) to develop and maintain linkages with a wide range of stakeholders.

In terms of networking behaviour (the extent to which brokers used their networks), the most active organisations networked on all aspects of training development and provision, had formal input into training generally through membership of committees dealing with training issues, and had contact with providers/brokers. Most of these were government or commercial organisations, with either a primary production or business training focus. Again, this is not surprising, given the characteristics of government agencies described in the previous paragraph, and the imperative of commercial organisations to keep abreast of, and shape training policy and direction.

Mapping of broking activity across industries and geographical locations

Mapping of broking activity by industry sector revealed fewer differences than expected. As noted earlier, the only significant finding from this activity was that organisations that operate in the 'not primary industry' sector (mainly NRM organisations) are less likely to be active in broking roles, than those involved in primary industry production. In the main, organisations in this sector are not-for-profit. Given that the key focus of the NRM sector is on preparation of NRM regional plans and implementation of strategies, rather than on education and training, this finding is not unexpected. The fact that such organisations are less likely to undertake activities such as analysing client needs therefore comes as no surprise.

Interestingly, the four organisations that were classified as the least active training brokers were all not-for-profit organisations, and two were engaged in NRM activities. It may be that lack of continuity of resources in terms of core funding, may be partly responsible for reduced broking activity amongst these organisations.

The FBA case study is an exception to the finding that 'not primary industry organisations' are less active brokers. The broking role of the FBA is increasing, and there is evidence that its lower levels of involvement in training to date are both an advantage and disadvantage. It is an advantage because the Association is not locked into historical training delivery arrangements with a small group of providers, but has the freedom to use different providers for different purposes, and to mix and match providers to find the best fit between needs and training. It is a disadvantage because the organisation lacks detailed knowledge about specific training policies, structures and supports, such as the National Training Framework and about the administrative requirements of subsidised training (e.g. FarmBis). This has resulted in a need to expand its networks to include those who are able to provide this information. This approach is supported by Aslin et al. (2002) who identified a key skill in capacity building in the NRM sector, as the ability to know where and who to go to for relevant information.

The finding that organisations in the 'not primary industry' sector are more likely to be isolated from their clients and to have more limited networks, is interesting, given that much NRM work is community-focussed activity. One explanation might be that the NRM organisations themselves often cover large geographical areas and have responsibility for a range of activities, including advocacy and policy recommendations. This focus on the 'big picture' may translate into some separation from the client base. There are ways to address this however, as the FBA case study illustrates, by forming sub-groups in local areas, with local coordinators dedicated to identifying and meeting training needs. These coordinators are critical in linking the resources and expertise of the larger organisation to identified training needs within local communities. Overall, as the FBA case illustrates, such organisations may need to work closely with training providers and others with experience in needs analysis, and to use the networks of these people to assist in engaging clients in training.

The only significant differences in levels of broking activity according to geographic location was that active brokers are either single-state focussed or operate in more than one state and/or territory, but not in all states and territories. This suggests that brokers may need sufficient resources, economies of scale and networks of influence to broker effectively, but that where networks are either too small (part of state) or too large (nationwide), brokers are not able to respond appropriately to their clients' needs. This suggestion is supported by Miller (2001), who found state industry bodies to be a critical link between local and national broking initiatives.

The finding that Tasmania has three of the seven active brokers identified in the study suggests that size and a clearly defined target audience and provider group, may assist in effective broking. Such conditions are likely to support a framework for the development and sustainability of stakeholder networks, and for maintaining active contact with clients.

Training providers and other brokers

Table 7 in Chapter 4 broadly categorised training brokers within rural industry in Australia into three groups, according to whether or not they were involved in training provision. These groups were: training provider using broking principles in their practice; training provider as broker; and other broker. The case studies provided examples of each of these three types of broking activity. A summary of the

characteristics of each case study, including the type of broking activity, is provided in Table 8. This table builds on case study characteristics presented in Table 2 (Chapter 3).

Table 8. Expanded characteristics of six case study sites

Name of case	Broking a core activity	Main sphere of broker activity	Type of organisation	Sector	Scope of activity	Type of broking activity*
Biodynamic Agriculture Australia	No	Client active	Not-for-profit	All	National	Training provider using brokerage principles
Regional Skills Training Pty Ltd	No (brokers its own programs)	Stakeholder active	Commercial	Grain, sheep, beef, other livestock, equine	Regional/ multi State	Training provider using brokerage principles
DPIWE Dairy Branch	One of a number of activities	Stakeholder active	Government	Dairy	Regional/ single State	Training provider acting as a broker
Solly Business Services	One of a number of activities	Broker & provider active	Commercial	Grain, sheep, beef, other livestock	Regional/ single State	Training provider acting as a broker
Fitzroy Basin Association	Yes	Client active	Not-for-profit	NRM	Regional/ single State	Other broker
Victorian Grains Industry Training Network	Yes	Client & stakeholder active	Not-for-profit	Grain	Regional/ single State	Other broker

*See Chapter 4 for discussion of three broad classifications of brokerage activity, depending on whether the broker is a training provider or other.

Note: For the purposes of this study, training provider is defined broadly to include all organisations that identify the provision of education and training to clients/members as one of their key activities. It does not refer exclusively to Registered Training Organisations.

All three types of broking display a strong client focus. Although the differences are not significant, there are indications that training providers focus more on the value of training to clients and on attracting repeat business and referrals from satisfied clients, while other brokers may have a broader focus on developing an industry or a community, rather than on return business. This suggests that for training providers, interaction with clients may be more closely targeted, although the example of the targeted and personalised approach of the broker in the VGITN case (other broker) suggests this may depend more on the individual approach of the broker, rather than the type of broker.

There are some differences between training providers and other brokers in terms of provider interaction. The findings suggest that training providers involved in brokerage are likely to use a smaller number of other providers than those classified as other brokers, which is not surprising, given their own expertise in training. For training providers, there is also some suggestion that activity in the provider domain is

more likely to be restricted specifically to those who can provide pathways for the provider-broker's clients. Again, this is not surprising, given the focus of training providers. At the same time, there are examples in the case studies of a desire by training providers to collaborate with other providers for the benefit of clients, and to create a range of opportunities for such collaboration. The description of the development of the *Growing the farm business* workshop in the Solly case study is a good example of this. This suggests that concerns identified by Kilpatrick and Bound (2001) regarding the negative impact of competition policy in Australian training provision are being addressed.

In terms of provider networks, it may also be that organisations like the VGITN, whose specific focus is brokerage, are in a position to create a broader range of targeted training opportunities for their clients and to draw on a wide selection of providers as they do so. For those organisations that are also responsible for the provision of some education and training, such as DPIWE, there may be fewer resources (time, personnel, funds) for brokerage, hence a need to focus more on specific aspects of brokerage (e.g. client interaction).

Brokerage funding sources

It was clear from the study that funding for brokerage came from a variety of sources, and that a number of people are not being funded separately for their activities, but are broking training as part of their broader role of providing advice and extension services, or are doing it 'off the side of their desk'. Examples include extension officers in state/territory Departments of Primary Industry, and employees of some breeder/grower associations.

The literature and a search of the Internet show there are two major funding arrangements for brokerage: provider-funded (commission paid by provider or profit sharing between provider and broker) and client-funded (clients can be individuals or organisations such as industry associations or government agencies, and funding can be in the form of a commission or salary). The current study found less evidence of commission-based, provider-funded brokerage. Most case studies featured a range of client-funded training brokerage activities (e.g., Solly, which is partly funded by Meat and Livestock Australia, VGITN which is funded by an industry and a farmer organisation, and FBA, whose brokerage is partly covered by government funding through the NAP). Because the purpose of the study was not to compare and contrast different funding models, it is not possible to identify the positive and negative features of each arrangement. However, the case studies provided evidence of the effectiveness of client-funded models in terms of matching needs to training for Australian rural industry.

What are the outcomes of broking arrangements for primary producers and others?

This section discusses findings from the telephone survey and from the case studies (Chapters 5 to 10). The findings indicate that broking yields a range of economic and social benefits for individual participants, broking organisations, specific industries and the broader rural industry and NRM sectors, and rural communities as a whole. The purpose of this project was to document, rather than measure, these benefits, illustrating them with specific examples from the case studies where possible.

For participants

For participants and potential participants, the following benefits were identified:

- Accessibility and affordability of training.
- Training targeted to local needs and conditions, linked to specific outcomes (e.g. employment, adoption of better NRM practices), and in some cases, nationally accredited.
- Access to the best possible training delivered by experts.
- Empowering individuals to play an active role in their learning/training pathway, including development of learning support networks.
- Awareness of the value of training.

These findings align closely with Kilpatrick and Bound (2001) regarding the immediate benefits of brokered training, and with Kilpatrick et al. (2001) and Miller (2001) regarding the long-term benefits, with regard to learner empowerment and the development of learning networks.

In case vignette 1 (Chapter 4), participants in a capacity building course for rural women indicated that they would not have been able to attend if the broking process had not kept costs down and assured delivery in their local community. In the FBA case study, broking of a course linking cattle production and NRM techniques in a specific region, meant that participants were ideally placed to go on and obtain incentive funding to implement practices on their properties. For participants in a header operations course brokered by VGITN, a sense of ownership of the course was an important factor in developing positive attitudes towards training. Because the course was targeted to a specific area of local industry need, participants subsequently gained employment in the field, again reinforcing the value of training.

In each of these examples, the role of a third party (broker) in ensuring a good match between needs and training, was critical. In particular, the benefits of brokered training extend well beyond the planning and delivery of the course, to include pre- and post-delivery contact, support and encouragement, as well as client advocacy. These key functions of brokers as agents of change are also identified in the literature (Miller 2001; Canadian Health Services Research Foundation 2003).

For broking organisations

For broking organisations, the benefits of brokerage included a range of resource-related issues, as well as capacity building within, and external to the broking organisation. The following specific benefits were identified from the data:

- Pooling of (often scarce) financial resources.
- Ensuring the cost effectiveness of training investment through broking, in order to create the maximum amount of leverage
- Widespread support for, and promotion of, training amongst stakeholders.
- Growth potential for broking businesses.
- Development of quality-assured course materials in an identified area of need is an investment, in that materials can be sold to other providers for delivery elsewhere. Funds raised can be used to broker further training for clients.
- Opportunities for collaboration and learning, involving a wide range of individuals and groups within and external to the community

These findings are supported by those of Kilpatrick and Bound (2001) and Gientzotis Consulting (2003) in terms of financial advantage for broking organisations, and of Gientzotis Consulting (2003) in terms of improvements in quality delivery and the development of a service culture.

For commercial organisations, in particular, issues of obtaining a return on investment in training were critical. The RST case study describes how a relatively small and new commercial venture has used broking principles to grow its training business, to the extent that it now services 250 clients annually (accredited training) and 3000 clients annually (non-accredited training). One of its strategies was to employ trusted and credible regional coordinators to act as brokers at the local level. Their role is to identify training needs and opportunities, and to target and engage course participants. In the Solly case study, ensuring participants gain a benefit from participation which is greater than the cost of the workshop, ensures continued participation in subsequent training.

Return on investment is also important to not-for-profit organisations, such as VGITN, in terms of the quality and quantity of training leveraged for members/clients. The VGITN case study highlights the cost effectiveness of broking for that organisation. For the cost of a three-day per week salary for the coordinator, the group is able to broker between 10–20 training courses per year for its clients, at an estimated annual value of $200 000.

In terms of capacity building within the broking organisation, the DPIWE and FBA case studies describe a symbiotic relationship between broker and provider, which enhances the capacity of both organisations, by building on each other's strengths and recognising and supporting each other's areas of weakness. In the FBA case study, this meant increased knowledge of the broker about training subsidies, integration of course materials, and course delivery methods.

For rural industries and the NRM sector

For rural industries and the NRM sector, there are a number of benefits of brokerage, related to a better equipped rural workforce. These include:

- Training reaches a wider audience
    - Better informed growers because of access to a wider variety of training than might otherwise have been available.
- Targeting relevant training to specific individuals/groups.
- Good participation rates in training because it is arranged by credible, local brokers.
- Continuity of service provided by a broker who develops learning pathways for individuals/groups, rather than ad hoc training courses.
- Good adoption rate of new practices.
- Industry/community ownership of training, and nurturing a training culture.

These identified benefits support findings from Kilpatrick et al. (2001) regarding the industry benefits of joint approaches to learning.

Outcomes of the *Cattle and Catchments*™ program (FBA case study) included the adoption of new practices by graziers in terms of operational management activities and future planning. In addition, there is a willingness by graziers to participate in subsequent training opportunities, brokered largely at the local level by staff employed by CHRRUPP.

The DPIWE case study outlines clear benefits for the dairy industry in Tasmania, of the brokered training for young dairy farmers. By working closely with key industry stakeholders to identify needs, a program was developed in conjunction with the training provider, to address the issue of the lack of young people achieving in the industry. Evaluation of the program indicated the need for further intensive support for younger farmers, giving rise to the development of a follow-up program. In another example, the VGITN case study describes the industry-wide benefits to be gained from the broking of a course in header operations, in terms of working with stakeholders to address a skill shortage that had the potential to impact on industry productivity and competitiveness.

Each of the above case studies illustrates the way in which brokered training can lead to a more innovative and competitive rural sector, with industry either acting as brokers itself, or as a stakeholders in the broking process.

For rural communities

Many of the benefits to industry extend to rural communities in general, in terms of better linking of training and employment opportunities, valuing of education and training, and increased community capacity. In short, findings from this study align with those of Gientzotis Consulting (2003) and Kilpatrick et al. (2001), regarding the benefits of brokerage in terms of increased social and economic community wellbeing through opportunities for cooperation and collaboration.

There are a number of instances within the case studies that indicate how social capital is built as (often diverse) individuals and groups within and outside the community collaborate to identify and deliver training solutions. For example, the RST case study describes how the development of training courses involves

community members providing facilities and/or equipment, to keep the costs of training down and to ensure relevance of training to local conditions. In another example, the VGITN case study describes a broking process that includes a diverse range of community, farmer, agribusiness, education and training, and industry groups in the identification, development and delivery of training for clients. In this case, the broker has a strategic plan that demonstrates a clear understanding of its role, and of its responsibilities to individuals, the grains industry, and the broader community.

What are the features of and inhibitors to effective brokerage?

This section considers findings from the telephone survey and the case studies. Where relevant, these are supplemented with findings from the literature, regarding brokerage in Australian primary industry, other industries, and overseas. Enhancers of effective brokerage are considered first, then a range of inhibitors is examined. The section concludes with a set of generic broking principles derived from the telephone survey and case study data.

Enhancers of effective brokerage

An understanding of the training broker's role
In Chapter 1 we provided a definition of a training broker:

> *A training broker plays an active and purposeful role in identifying training needs. A training broker considers the whole suite of present and potential training opportunities and actively matches needs to training, acting in the best interests of the client.*

This definition clearly distinguishes between training brokers, and others involved in education and training. Findings from the study suggest that the more effective the broker, the stronger their sense of purpose, the greater their understanding of their role, and the greater their understanding of how the broking partnership works. This finding is supported by Johns (2004) who identified consolidation of partnership identity and heightened awareness of the impact of the partnership as central to developing and sustaining effective partnerships.

From the data, six discrete roles were identified in matching needs to training; however, not all could be considered broking roles:

1 **Information** sharing about training products and clients' needs
2 **Referring**/recommending to existing programs
3 **Negotiating** access to/participation in existing programs
4 **Modifying** existing programs through negotiation
5 **Developing** programs in response to an identified unmet need
6 **Investing** in brokerage (financial/human resources)

Because the focus of brokerage is on *actively* matching needs to training, we argue that the first two (informing, referring) are not broking roles. The roles that clearly constitute brokerage are shaded in grey in Table 9. The table also links stakeholder groups to broking roles. Effective brokers are likely to undertake all of the roles identified for their particular stakeholder group. As well as having/acquiring relevant knowledge, skills and networks in place to support them in these roles, effective

brokers ensure they are acting professionally and ethically in accordance with appropriate ethical, privacy and confidentiality, and professional indemnity requirements.

Table 9. Stakeholders and broking roles

Stakeholder	Inform	Refer	Negotiate	Modify	Develop	Invest
Agribusiness	X	X	X	X	X	
Catchment authorities/regional development groups	X	X	X	X		X
Extension officers	X	X	X	X	X	
FarmBis	X	X	X	X		X
Farmer associations	X	X	X	X	X	X
Farmers	X	X	X	X		
Farming systems groups	X	X	X	X		X
Private consultants	X	X	X	X	X	
Research & development orgs	X					X
State/Territory DPIs	X	X	X	X	X	X
Training providers	X	X	X	X	X	
Policy	X					X

The findings indicate that, as well as having a clear understanding of the nature and purpose of brokerage, effective partnerships are enhanced by a range of factors that can be grouped into three broad areas: environment, resources, and processes.

Environment

The broking environment relates to the internal and external (policy) domains. Brokerage is most successful in a collaborative and trusting climate, where stakeholders have a commitment to a shared vision and some measure of shared values. This holds true for training brokerage within Australian rural industries (Kilpatrick & Bound 2001; Greer & Scudds 2004), as well as brokerage in other industries (see Pettersen 2005 re insurance brokerage), and in overseas contexts (see Canadian Health Services Research Foundation 2004). The case studies clearly illustrate that effective brokerage is underpinned by relationships, between and among broker and clients, broker and providers, and broker and other stakeholders. All brokers in the case studies have direct links to the local community, and are well known and trusted by clients/potential clients, as well as training providers and other stakeholders. In the BAA and RST cases, some of these links are mediated by local brokers (the voluntary farmer broker in BAA, and paid local coordinators employed by RST and FBA).

Effective brokers describe how the building of relationships and the development of trust and credibility amongst clients, providers and other stakeholders, is an ongoing priority, and are realistic about the time and resources required to develop relationships. This is reflected in the RST and FBA case studies, where both broking organisations decided to employ local coordinators/brokers to focus on developing

relationships at the local level. It is reflected in the actions of the broker in the VGITN case study, who provides a personalised service to the 150 grain farming families that she serves. Realistic expectations are identified in the literature as integral to effective broking (Greer & Scudds 2004).

There is evidence in the case studies that brokerage is viewed by stakeholders as a team process in which partners share responsibility and rewards. Most describe how a close relationship with industry is a key element of a climate conducive to brokerage (e.g. VGITN and the grains industry; DPIWE and the dairy industry; Solly and the meat and livestock industry). The VGITN case describes in detail how multiple stakeholders from different contexts and backgrounds (farmers, providers, farmer organisations, government) work closely together, and how the broker uses a range of strategies to ensure community input. This aligns with Australian (Kilpatrick et al. 2002b; Mitchell 2004) and overseas (Shortell et al. 2002) partnership experiences. The VGITN group is enthusiastic and works actively and tirelessly to broker training for the grains industry. Members see themselves as part of a very successful organisation and regularly celebrate successes, for instance with the barbecue held on completion of the first header operations course. Recognition of partnership identity and celebration of success are characteristics of effective partnerships and have been found to contribute to their sustainability (Kilpatrick et al. 2002b; Johns 2004).

In terms of the external (policy) environment, the case studies illustrate the role of policy in helping to support conditions conducive to brokerage. For example, in the FBA case study, availability of NRM funding through the NAP and NHT programs facilitated local initiatives, including the employment of local brokers (CHRRUPP). It would seem that further opportunities for NRM groups to enhance their broking capacity will be created through the National Knowledge Broking for Regional NRM initiative. In terms of industry, the Victorian Farmers Federation contributes funding towards the employment of the paid coordinator in the VGITN case, while the DPIWE case study illustrates how broking of training is supported by the dairy industry through the Targeting our Profitability program.

While policy does not always directly fund brokerage, the case studies suggest that a supportive government and industry environment gives brokers confidence in developing new programs. Examples are the FarmBis subsidies to participants in approved training. There is evidence that the availability of FarmBis subsidies for participants gave brokers confidence to develop new courses in the RST, Solly and FBA case studies. However, most cases also indicate that more needed to be done to identify and exploit other sources of funding and support, to allow broking activities to be expanded. Some brokers, such as VGITN, are already well down this path.

Resources

Resources fall in two main areas: human (people and their skills and knowledge), and financial. Lack of time was also an issue for many.

The case studies indicate that effective brokers had generic skills in facilitation, communication, mediation, and leadership, as well as detailed knowledge of available training and the capabilities of providers. These are the same sorts of skills required of others in coordinating roles, and are identified as attributes of coordinators/brokers in the Australian (e.g., Mitchell 2004) and overseas broking literature (e.g. Canadian

Health Services Foundation 2003). In addition, brokers had skills and experience in working across different sectors (e.g. producer, education, industry). The brokers in the VGITN and Solly case studies are good examples of this, while the FBA case illustrated how the broker linked with a training provider who could help negotiate the rural training sector (FarmBis) with which the broker had had little experience. The ability to work across contexts is identified elsewhere as a characteristic of effective brokers (Kilpatrick & Bound 2001; Kilpatrick et al. 2002a).

Equally as important as the above skills, was the skill of knowing where to find relevant information. The local coordinator in the FBA case study is quite clear that brokers do not have to be experts in everything, but they do need to know where to go to obtain information. Most cases described the importance of knowing which provider/s to approach to develop specific courses, and where to go to obtain funding. Timing was also important, with the DPIWE case illustrating that sustainability is about using local knowledge whenever possible, but knowing when to bring in external expertise.

In terms of financial resources, the case studies illustrate various funding arrangements for brokerage, ranging from funded brokers (the broker in the VGITN, the local coordinators in the FBA case), to those for whom brokerage forms part of a much broader role (DPIWE case study), to those who must generate their own income to continue broking (Solly and RST cases), to those who work in a voluntary capacity (the farmer broker in the BAA case study). In terms of commercial broking organisations, the Solly case study illustrates how the need to obtain return on investment was a driver for high quality, responsive training. As the broker noted: 'This commercial process of investment, income generation, and provision of value can foster the creative and proactive development of training opportunities'. Some brokers also had in place a mechanism for expansion (see VGITN case, where the broker prepared to expand the course in header operations and sell to other providers). Others, such as Solly, were aware of opportunities for expansion, but at the time of writing the case study, had not developed a mechanism for achieving this.

Overall, there was evidence from the case studies that allocation of adequate resources (time, staff, financial) was integral to an effective broking process, and this was clearly illustrated in the DPIWE case study. Data from the telephone survey also recommended that brokers organise the backing of relevant government agencies and others at the start of the project, so that resources (e.g. facilities, staff, reputations) are not compromised. The issue of appropriate resourcing for partnerships, including interactional infrastructure, is well documented in both the Australian (e.g. Kilpatrick & Bound 2001; Kilpatrick et al. 2002b; Greer & Scudds 2004), and overseas literature (e.g., Canadian Health Services Research Foundation 2003), and supports findings from the current study.

There is also evidence within the cases that resource continuity facilitates more effective brokerage. This is clearly illustrated in the VGITN case study, where the broker had sufficient resources to access funding to produce training material and to put together a highly effective combination of trainers. Continuity of resourcing also meant continued employment for the broker, who had built up an extensive network across the grains industry and beyond. The issue of continuity (or lack of continuity)

of resourcing, features in other research into the development and sustainability of effective partnerships (e.g. Kilpatrick et al. 2002b).

Processes
The case studies highlighted the importance of having processes in place to facilitate communication and information sharing in general, as well as processes for involving relevant stakeholders in course planning and development, and processes for evaluating brokerage. These processes, sometimes referred to in the literature as interactional infrastructure (e.g. Canadian Health Services Research Foundation 2003), have been found to underpin other effective training brokerage partnerships (Kilpatrick & Bound 2001; Greer & Scudds 2004).

General communication and information sharing processes were identified by Mitchell (2004) as one of four enablers of effective networks. In terms of the current study, effective brokers also put in place such processes, which were facilitated by developing a broad stakeholder base. A good illustration is the committee featured in the VGITN case, comprising farmers, providers and a range of other stakeholders. Key advantages of ensuring processes are in place to facilitate regular and ongoing communication and information sharing were identified as:

- carefully planned and paced process of information gathering, as opposed to ad hoc information gathering, before planning began (see DPIWE case)
- formal identification of industry training needs (see VGITN and DPIWE cases)
- increased capacity to identify and understand emerging industry needs, often before learners (see VGITN case)
- long-term relationship between broker and potential participants and key stakeholders ensures relevance of content, delivery, timing (see Solly case).

Course planning and development processes usually comprised a series of relatively formal meetings between broker, provider and other relevant stakeholders. The VGITN case is a good example of a process of proactive planning and negotiating with regard to proposed courses, and includes reference to various stakeholders such as consultations with header companies, and careful selection of trainers. The formal processes of negotiating planning and development of the training are illustrated in some detail in the DPIWE and FBA case studies. Systematic involvement of stakeholders in designing courses to meet identified gaps, as well as ensuring all relevant stakeholders are involved early in the planning process, ensures training is targeted and relevant. Both the VGITN and DPIWE cases illustrate the importance of getting this process right.

Mitchell (2004) identified evaluation of partnership outcomes as another of the four enablers of effective networks, although evaluation is not always identified as a separate process in the literature on effective partnerships. The case studies quite clearly view evaluation as a key component of brokerage, and most describe how evaluation is undertaken systematically, both during and on completion of the training. A good illustration of this is the FBA case study, which described a formal meeting between representatives from the broker and provider organisations. The parties not only discussed training program evaluation, but also focussed on evaluation of the broking process, from both the broker and provider perspectives.

Cases such as FBA and Solly illustrate the close link between evaluation and quality assurance processes, and highlight their importance in ensuring broking of future activities. These brokers not only evaluate the broking process, but act on evaluation results. For example, in the FBA case, as a result of evaluation, the broker modified the content of the *Cattle and Catchments*™ course, the way it was delivered, and reviewed its own participation in course delivery.

The issue of processes for developing and sustaining partnerships is critical to effective brokerage, and will be revisited in the later section on 'Models of effective broking arrangements'.

Inhibitors to effective brokerage

The case studies did not provide a large amount of detail on inhibitors of effective brokerage, as their purpose was to highlight processes for developing and sustaining effective brokerage. However, some general comments were provided by case study interviewees and telephone survey participants, regarding inhibitors to brokerage. These issues can be considered in the light of the three broad categories of enhancers: environment, resources, and processes.

In terms of processes, some brokers described a breakdown in communication processes at a critical stage of development, meaning that the quality of the training delivered was negatively affected. In one example, this happened at a very late stage of course development, even though the earlier stages had been characterised by a free and open exchange of ideas, and a formal process for sharing ideas. This is different from the issue of insufficient mechanisms for managing member input identified in the literature (see Shortell et al. 2002), and suggests that brokers should not become complacent when collaborative processes are working effectively, because this could well be the stage when problems arise.

Not surprisingly, the issue of insufficient resources (financial, human, time) was identified a number of times as an inhibitor to brokerage, particularly in terms of the effects on continuity of staffing and programs. This supports similar findings from both the Australian (Kilpatrick et al. 2001; Greer & Scudds 2004) and overseas literature (Shortell et al. 2002).

In terms of policy, there was little specific reference to its inhibiting effect on brokerage, but again this is not surprising, given that the focus of the study was on effective brokerage. One broker commented that reliance on subsidised training for the rural sector (e.g. FarmBis) has made it difficult to coordinate training that is not subsidised, for fear of not being able to attract sufficient participants to cover costs and/or make a profit. This brings into focus the need to consider sustainability issues post-FarmBis, and suggests a major change is needed in attitudes towards non-subsidised training within the rural sector.

Principles of effective brokerage

Chapter 4 contained a list of attributes of effective training brokerage process, summarised under the headings: project development; project management; managing stakeholders; clients; assessment of needs; delivery; and evaluation. These points were highlighted in the survey interview process and subsequently confirmed in the case studies. From these attributes, a set of principles for effective broking has been developed. These principles appear to underpin effective brokerage, regardless of organisation type, industry sector or location, and are based on relationships of trust and the use of extensive networks. The principles are derived from the research data and from the synthesis of the Australian and overseas partnership and broking literature. They are presented in three groups, according to target audience: training providers using broking principles (Table 10); all brokers (Table 11); and funding bodies/industry associations (Table 12).

Table 10. Broking principles that training providers should adopt

- Be learner-centred
  - Active in identifying client needs (relationships)
    - From informal networks
    - Through formal processes
  - Active in ensuring clients' needs are met, e.g matching programs or adapting programs and/or developing new programs
- Be flexible and responsive to client needs regarding content and delivery
- Develop and maintain a wide network of stakeholders to identify emerging needs and awareness of other training opportunities
  - Include brokers in the network
- Apply the principle of reciprocity by taking a long-term view, and seeing yourself as part of a community of training providers
  - Recognise the value of brokerage
- Be willing to collaborate with other providers

Table 11. Good practice broking principles

- Be learner-centred
  - Active in identifying client needs (relationships)
    - From informal networks
    - Through formal processes
  - Active in working with providers to ensure clients' needs are met, e.g adapting programs or developing new programs
- Have links to local networks; clients have a relationship of trust with the broker
- Encourage a learning culture (nurturing)
- Have links to training providers; cultivate a relationship of trust with trainers
- Maintain a continual awareness of training opportunities and gaps
  - From informal networks
  - Through formal processes
- Develop and maintain a wide network of stakeholders to identify emerging needs and awareness of other training opportunities
  - From informal networks
  - Through formal processes
- Actively match needs to training
- Assure the quality of the training provided as a result of brokerage
  - Select credible training providers for referral or delivery
  - Evaluate the training provided as a result of brokerage
- Have appropriate professional standards in place and comply with relevant legislation
- Evaluate the brokerage process for credibility and quality assurance

Table 12. Principles for policymakers and industry bodies: fostering brokerage

- Provide incentives for brokers, trainers and participants, e.g. financial
  - Need rewards for broker, not just trainers and participants
- Recognise brokerage as a key part of getting an effective return on investment in training
  - Recognise brokerage as a key part of being effective as an industry or regional body
  - Demonstrate the value of brokerage (e.g. cost:benefit analysis)
  - Ensure training product developers link to relevant, quality brokers
  - Promote the development of broking skills
- Recognise that training providers need resources to actively identify client needs in order to maximise return on investment in training

Models of effective broking arrangements that apply to learning activities for various sectors, groups and issues in primary industry

The results indicate clearly that there are no significant differences in broking arrangements for different organisations, although strategies for client interaction and client base differ slightly between government, commercial and not-for-profit organisations. There was also no significant difference between industry sectors or location, apart from the observation that 'not primary industry' organisations were less likely to be active brokers.

The telephone survey and case studies yielded insufficient information to determine whether particular groups (e.g. indigenous, culturally and linguistically diverse) required a different broking model, although research by Greer and Scudds (2004) indicated that the same basic principles also apply to brokerage in indigenous communities. These include development of and commitment to a shared vision; trusting relationships and social support in the learning process; skills in working together and with others; and appropriate interactional infrastructure. They noted that what differs is the amount of time and wider range of engagement and support strategies needed at various stages of the broking process, rather than the principles themselves.

Findings by Kilpatrick and Bound (2001) regarding the difference between market-focussed and client-focussed brokers were not strongly supported in the current study. Although there were differences in the way commercial organisations operated, these differences were mainly in relation to type of client, method of client contact, and focus of training. There was nothing in the RST and Solly case studies to suggest that relationships with clients were hierarchical, or that their focus on financial return was at the expense of clients.

There are no clearly identifiable models of training brokerage for different contexts. Instead, the case studies indicated that effective brokers operate from the same set of basic principles and processes, but are flexible in applying them within their own context. There is also evidence within the case studies that the same organisation may use different strategies and a different mix of stakeholders, depending on the nature of the training being brokered. For example, training in broader issues of management and succession planning may require a broking process that involves a wide range of possible stakeholders to ensure multiple perspectives are covered, whereas more technical courses (e.g. header operations) with a specific body of knowledge, may require input from a different range of stakeholders.

In another example, depending on the type of training being brokered, processes for engaging participants may differ. For example, in the DPIWE case, a wide range of strategies was used to engage as many of the target population as possible in the *Making progress for young dairy farmers* course. This is in contrast to a much narrower range of engagement strategies for an earlier benchmarking program, which was targeted specifically at those who had experienced difficulties in understanding and interpreting benchmarking outputs.

The following section discusses the generic broking process evident within all case studies, and links these to the generic broking principles identified earlier in Table 11. Specific examples are provided, where relevant, of how different brokers have adapted strategies to suit their particular context.

The broking process

In accordance with the literature on partnership development, the data indicate that brokerage is a process or lifecycle moving from a looser, informal structure in the earlier stages to a more formalised structure later (Henton, Melville & Walesh 1997; Lane & Dorfman 1997; Kilpatrick et al. 2002b; Falk & Smith 2003). There are also indications in the case studies that effective brokers have a good understanding of the process and of where they fit within it, which Shortell et al. (2002) identified as a key attribute of effective partnerships.

The process can be synthesised into three broad stages:

- getting started
- matching needs and opportunities
- evaluating the broking process.

Each of these stages includes one or more of the principles for effective brokerage outlined earlier in this chapter. Table 13 provides a matrix of broking stages and principles.

Table 13. The broking process: stages and principles

Broking stages	Broking principles
Getting started	• Be learner-centred • Have links to local networks; clients have a relationship of trust with the broker • Encourage a learning culture (nurturing) • Develop and maintain a wide network of stakeholders to identify emerging needs and awareness of other training opportunities • Have links to training providers; cultivate a relationship of trust with trainers • Maintain a continual awareness of training opportunities and gaps
Matching needs and opportunities	• Actively match needs to training • Assure the quality of the training provided as a result of brokerage
Evaluating the broking process	• Evaluate the broking process for credibility and quality assurance

Getting started
This stage is where information is gathered from a variety of sources, about client needs and available training opportunities, and involves the widest possible range of stakeholders. The case studies identify a wide range of informal and formal processes for identifying training needs. Formal processes include regional/NRM /industry strategic planning meetings and conferences; recommendations arising from evaluations of previous projects; and formal surveys of industry association members, agribusiness clients etc. Informal processes include regular and ongoing feedback from clients and other stakeholders, and the use of broker networks to seek specific input from/share information with associates, key industry and government stakeholders.

The sort of information to be collected includes: existing skill levels of the client group (both generic skills, and technical or content skills); preferred learning styles of participants; current and emerging opportunities or threats to the industry/organisation, and skills required to meet these current and emerging needs. Any assessment of training needs should include recognition of current competence, to ensure clients are matched to training that is appropriate to their needs. Where the broker is not a training provider, having access to training providers qualified to assess current competence is important.

During this stage, local networks are gradually developed and expanded. This is essential for building trust between broker and client. The case studies indicate that trust plays a key role in determining program participation rates, both initially and in terms of repeat business. It is built as brokers gain a reputation for coordinating high quality, relevant, timely, accessible and affordable training. In line with findings from Kilpatrick and Bound (2001), the case studies show how relationships of trust are facilitated when brokers have a detailed knowledge of their client base and its changing needs. There is also evidence to suggest that sub-broking at the local level can help to build and/or strengthen a relationship of trust between a larger broker organisation and its clients. Examples include the local coordinators in the RST and FBA case studies.

The building of trust between broker and provider also begins at this stage, as well as the development of broker-provider networks. The case studies highlight a number of factors that help to build trust:

- choosing the best possible provider/s for the job
- the credibility and reputation of both the broker and provider (reputable brokers attract reputable providers and vice versa)
- the extent to which each party has similar or shared values, particularly in relation to working collaboratively to best meet the needs of learners
- a clearly identified process for consultation, negotiation and program development, with the roles and responsibilities of each party clearly identified and understood.

It is important that the broker has knowledge of, and linkages with a range of credible local and external training providers able to deliver programs relevant to target client group needs. For all brokers, including training providers acting as brokers, good practice is about working collaboratively as part of a community of training providers,

in the best interests of learners. This approach supports research from the Canadian Health Services Research Foundation (2004) that found 'broking will only really be able to function ... if there is a true network of brokers reaching out, sharing information, and offering tips on best practices' (pp. 2–3).

Supporting findings from Kilpatrick et al. (2001), the current study found that brokers play an important role in fostering a learning culture, not only amongst their client base, but also amongst their broader stakeholder group. Strategies to foster a learning culture begin during the start-up phase and extend throughout the life of the brokerage partnership. They include the provision of support and follow-up to clients before and after training, working with clients and other stakeholders to develop learning pathways relevant to learners' needs, and facilitating and encouraging dialogue between clients and providers. A good example is the approach of the VGITN coordinator, who has a number of strategies for encouraging a learning culture amongst her clients, including different email and fax lists for people at different stages of their learning journeys, recognising and valuing the skills and knowledge of clients, and promoting the value of training within the broader stakeholder group. These strategies empower clients as active partners in the learning process.

As well as developing linkages with providers, the start-up phase is also characterised by the development of networks and strategies to allow the broker to maintain a continual awareness of training opportunities and gaps. Networks for identifying training opportunities can be both formal and informal. Formal linkages include participation in regular regional forums, industry association planning meetings, and similar stakeholder planning/meeting forums. Informal linkages include ongoing contact with representatives from stakeholder groups, and regular scans of stakeholder, industry and government websites. This is where good Internet research skills are useful. Evaluations of completed training programs also provide information, while some brokers commission their own reports into training requirements and gaps.

The case studies show that effective brokers use a range of strategies to scan for opportunities and gaps as illustrated in the VGITN case study. The broker used multiple sources (2003 report, conference of stakeholders, contact from a leading header operator) to identify a gap in training for header operators. In another example, the broker in the Solly case used his extensive networks amongst associates, clients and industry associations to identify a gap in the training market in relation to farm business expansion, and to gauge interest in participating. The broker, a commercial operator, subsequently invested in developing and delivering a relevant workshop.

Matching needs and opportunities

The start-up stage—where relationships are being established, networks are being developed, and issues relating to training needs and opportunities are being explored—is followed by the more formal stage of linking identified needs to appropriate training. At this stage, it has become clear which stakeholders should be involved in the process, so brokers develop methods to facilitate consultation and negotiation between the relevant partners. These usually involve some formal meetings, and may include informal processes as well. Having an understanding of the culture of other partners in the network (e.g. training institution culture, industry

association culture) is important at this stage, as are the negotiation and leadership skills of the broker.

Actively matching needs to training is likely to involve most or all of the following six phases of activity, depending on whether an existing program is selected, or whether a program is to be modified or a new one developed. Although these phases are presented as linear, in reality some will be undertaken concurrently.

- Clarify/define needs and target audience, and set learning objectives

  This phase is likely to form part of an early planning meeting of stakeholders, and should involve the broker, provider/s, and representatives from the client target group at a minimum. Other stakeholders such as industry organisations and/or relevant government agencies should also be included as appropriate. The DPIWE case study illustrates the importance of this phase: to clarify, refine and articulate the general needs expressed earlier in the process; to specify the target client group (e.g. young dairy farmers) and to devise learning objectives that meet the requirements of all stakeholders.

- Determine what type of program will best meet identified needs

  The case studies describe how input from stakeholders (particularly from training providers and industry associations) is sought, to determine whether to offer an existing program, to adapt an existing one, or develop a new one, and whether or not the program should be accredited. This phase is characterised by stakeholder input on a range of issues, including: comparison of learning objectives (see paragraph above) to the objectives of existing programs; the need to meet industry and legislative requirements; availability of appropriate expertise to develop and deliver the program; and the availability of funding (in general, funding is more readily available for accredited programs).

- Determine funding source and make application to the funding body as appropriate

  Most brokers in the case studies have a wide knowledge of available funding sources, and use their networks to keep abreast of new and potential sources. Stakeholders are likely to be involved in determining whether funding should be sought from external sources (e.g. FarmBis, User Choice, NAP funding), and the extent to which clients might be expected to contribute to the cost of their own training. Effective brokers tend to use a range of different funding sources, depending on the training required, as illustrated in the VGITN case study.

- Select a credible and appropriately qualified provider

  Selection of a provider/s can be done in a variety of ways, including calling for expressions of interest, using the stakeholder group to identify relevant expert/s, and using the broker's own knowledge of and relationships with credible providers. There are a number of examples in the case studies about selection of providers. For example, DPIWE used a training provider with whom they had a long-standing and trusting relationship, noting how the credibility of provider and broker were closely linked. On the other hand,

Solly selected a leading expert in the field to deliver the training program it brokered. The broker and stakeholder group need to be satisfied that the selected trainer is the best possible person for the job, and that they are prepared to work collaboratively to develop and/or deliver a program that will best meet the needs of the client target group.

- Work with stakeholders to determine and develop program content

  Where the decision has been made to modify an existing program or develop a new one, the phase should involve broker and provider/s, with input from the client target group. Input should also be sought from industry associations and government agencies as appropriate, the FarmBis coordinator (if relevant), and other experts as required. The case studies (see in particular, FBA and DPIWE) illustrate how the process is one of negotiation over a period of time, as program content is gradually compiled, then refined to ensure it addresses the learning objectives. Critical to the process is the free flow of communication and open and trusting relationships between the stakeholders. Effective brokers work with stakeholders to develop clearly understood and agreed processes of negotiation (well illustrated in the FBA case study).

- Ensure the program is trialled with sample of target audience before offering

  In keeping with the learner-centred focus, and as part of quality assurance, programs should be trialled with a sample of the target group, or with others having similar characteristics to the target group. At the very least, this phase should include informal feedback from some potential clients, regarding program content and format. Some members of the stakeholder group could also be used.

Effective brokers are aware that quality assurance underpins the process of successfully matching needs to training. Program evaluations should be developed in consultation with the training provider/s as the program is being developed, to ensure the focus is on measuring the extent to which the learning objectives have been met. Part of the quality assurance process is selecting credible training providers (discussed earlier). Another key part of the process is evaluation of training outcomes. This helps brokers and other stakeholders to measure the extent to which needs and training have been successfully matched.

The case studies indicate that brokers and other stakeholders involved in developing the program use evaluation to identify further training needs, and to facilitate pathways to further learning activities for clients. This includes providing information on other available courses or contact details for other providers, as well as broking further training. The results of evaluations are also used to benefit subsequent program participants. For example, information can be used to revise existing programs before offering them to a new client group (see FBA), and to guide the development and delivery of subsequent training programs (see DPIWE). Effective brokers ensure that processes are in place to evaluate both during the program (regular monitoring), as well as at its conclusion, and use a combination of formal (written participant surveys) and informal participant feedback.

Evaluating the broking process
The third stage in the broking process is that of evaluating the process itself. The purpose of this stage is to assess whether the process has been in the best interests of the client. The literature suggests that this stage is less well recognised or understood (e.g. Canadian Health Services Research Foundation 2003), and there are indications from the telephone survey that a number of brokers were referring to evaluation of the training (content, delivery, presenters) rather than evaluation of the broking process itself.

Effective brokers understand the difference between the two, and place importance on a formal evaluation process following delivery of the brokered training. In the FBA case study, evaluations of the training itself, and the broking process, were conducted during the same stakeholder meeting. The meeting determined that overall the broking process was successful in meeting its objectives, and identified areas for improvement (e.g. better communication between broker and provider needed at the final stages of program development).

Evaluation of the broking process should include a stakeholder review of the ten good practice broking principles listed earlier in this chapter (Table 11), as well as a review of process issues. Specifically, it needs to capture the level of value adding (i.e. where the dollar value has been made and how participants have benefited along the way). The Solly case illustrates this point well. Good evaluation is also dependent on a clear articulation of the purpose of the brokerage (i.e. to maximise impacts or own profits, or somewhere in between).

Summary

Much appears to be happening in rural industry in terms of training brokerage. Not all of the activity could be described as brokerage in terms of the definition provided in Chapter 1, but the good practice examples of training providers using broking principles in their work are also important in creating a more responsive rural training market. Although there are no failsafe models of training brokerage, it is clear that the activity is underpinned by a set of generic principles and processes that appear to be common to all effective brokers, even though different broking contexts may call for flexibility in implementing the principles, and may determine how much time is spent at each of the three broad stages of the broking process.

Chapter 12: Implications and recommendations from this research

Introduction

The study has explored a number of broking arrangements within rural industry and has concluded that effective broking comprises a three-stage process, underpinned by a set of generic principles. These findings have been developed into a user-friendly manual, *Matching training needs and opportunities: A guidebook.* This guidebook, and the set of related case studies (Chapters 5 to 10 in this report), address the fifth project objective: to prepare case studies and a user-friendly manual that can potentially promote effective broking arrangements. The guidebook was developed by the researchers with stakeholder input, and is available electronically from the Cooperative Venture for Capacity Building website: http://www.rirdc.gov.au/capacitybuilding/index.html.

Implications of this research

This research on the process and benefits of brokerage has the potential to bring about a number of significant changes in the rural training market. Its applied nature means that new knowledge has been created with a specific application in view—the identification of new ways to match needs to training for rural industry. At the same time, it also provides input into three other areas of research: experimental development (knowledge gained from the research is used to create new materials and processes); demonstration and extension (broad communication of new knowledge in a way that allows clear assessment of its technical and economic viability), and training and development (human resource development for RIRDC's rural industries).

All Australian primary industries are potential beneficiaries of this research. Earlier investigation by Kilpatrick (1996) has shown a positive link between participation in learning activities in general, and farm profitability. Research has shown that primary producers who are involved in appropriate participatory learning activities are more likely to adopt sustainable agricultural practices (see Synapse Research and Consulting and CapitalAg Consulting 2001 for a summary of relevant research prepared on behalf of Land & Water Australia). While this research was restricted to brokers operating in regional Australia, there is no reason to suggest that brokers with a client focus and a learning orientation would not also benefit clients in metropolitan Australia.

Benefits will flow from the research because it will facilitate:

- client-focussed development of training that implies improved awareness by education and training providers, of opportunities for developing relevant, innovative learning programs and better mechanisms for producers to nominate needs, and
- better matching of learning needs with provision of learning activities.

Adoption of the recommendations from this project, and implementation of the manual, *Matching training needs and opportunities: A guidebook*, will lead to increased participation by producers in superior learning activities. It will mean that producers and their industry organisations will have information to direct scarce funds in the most effective way when matching learning needs with provision of activities. In addition, training providers will be able to direct their resources toward the areas of demand.

Government is examining options for supporting primary producer and land manager training activities following the end of the current FarmBis program in 2008, and for developing human capacity in natural resource management. This research provides an evidence base for input into those policy decisions, and policy development on learning activities for natural resource management.

The findings presented here support earlier research into training brokerage (Kilpatrick & Bound 2001) that called for public support of training to extend beyond mere delivery, to developing providers to be flexible, adaptable and understanding of client needs, and developing clients as informed, discerning and empowered consumers of quality vocational education and training. The case for public support is partly based on grounds of equity and inclusion; however, this study suggests that there are also economic efficiency arguments for improving the match between training need and provision.

Australia is currently making a huge investment in research, development and extension (RD & E), and NRM delivery. The broking model has significant implications for improving communication, reducing duplication, enhancing coordination, and fostering collaboration across regions, industries and issues.

Specific implications of the broking model for different sectors are noted below.

For primary producers

A simple pathway for identifying the training that is available to best meet their needs (compared to the necessity of having to do all the investigation themselves).

For training brokers[1]

- Tools for matching training provision to client needs.
- Models for funding of the role of training brokerage.

For training providers

- A simple pathway for making their training accessible to a greater number of primary producers (compared to having to find the clients most in need of training provision).
- Opportunities to partner clients in adapting training provision to meet client needs.

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[1] Training brokers include the following: farmer/industry organisations, NRM regional organisations, R&D corporations, FarmBis, state agencies, NHT and DAFF.

- Better knowledge about the competition in the training market, what type of training is needed, and who needs it (reducing duplication and enhancing the benefits of competition).

For institutional investors in training[2]

- A mechanism by which to reduce duplication of effort in the assessment of training needs, the development of training services, and the delivery of training services.
- An opportunity to better coordinate training provision within and between industries, and within and between regions.
- An opportunity to leverage investment in training by focussing on brokerage, rather than training delivery.
- An opportunity to adapt the training brokerage model to the brokerage of all RD&E services (R&D, extension, training and funding).

The benefits outlined above could be accrued to the greatest extent, and at the greatest rate, if a national approach to training brokerage was adopted. This could facilitate a sharing of knowledge about training needs and training services which is across industries and across regions. This sharing of information could be extremely powerful in creating a responsive and more active training market.

The evidence gathered from this research suggests that a coordinated national approach to implementing training brokerage across Australia could result in significant improvements in the effectiveness and efficiency of training delivery. The benefits of these improvements would be many times greater than the costs. Indeed, for a very small outlay, the effectiveness of the current investment in supporting sustainable agriculture could be massively improved.

Recommendations

Overall, the study highlights that training brokerage needs to be recognised as a discrete and vital role in developing a responsive training market, and that the roles of training providers as brokers, as well as third party brokers, need to be better understood and more widely supported. It also indicates that for training brokerage to grow, innovative ways of supporting and encouraging its development are needed. The possibilities of generating funding for brokerage from a wide range of other sources have not been fully explored, nor have mechanisms for commercial and other organisations to expand on training they have brokered by marketing it elsewhere.

Specific recommendations to foster the development, expansion and sustainability of good broking practices are provided in the following sections. These recommendations also identify which key stakeholder group/s (brokers, training providers, policymakers and industry bodies, and others) each recommendation is directed towards.

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[2] As for training brokers, institutional investors include the following: farmer/industry organisations, NRM regional organisations, R&D corporations, FarmBis, state agencies, NHT and DAFF.

Provide brokers with necessary skills and support

There is a clear need for brokers to be skilled communicators and facilitators, and to have a clear understanding of the broking process. As well as ensuring brokers have generic skills in key areas such as communication, negotiation and leadership, a range of specific skill development and support strategies is recommended, as follows.

R1: Disseminate training brokers guidebook as widely as possible

The step by step guidebook was developed as part of the current project, and has been informed by and trialled with broking practitioners and other key stakeholders. The guidebook should be disseminated by the CVCB via its website and through the networks of CVCB partners. There should also be a link to the RIRDC website. The guidebook would ideally be made widely available through the websites of a range of other organisations, including FarmBis, state and territory departments of primary industry, the Australasia Pacific Extension network (APEN), and Registered Training Organisations nationally.

R2: Provide workshops that will showcase models of good practice, equip stakeholders with skills in effective brokerage of learning activities for primary producers, and promote good practice in broking

The guidebook has been designed for individual use, and is also a tool to be utilised in workshop situations. It provides case studies to illustrate good practice in brokerage. Using this guidebook, training brokers' workshops need to be organised and promoted within each Australian state/territory, and should be conducted by skilled facilitators. Recommended forums include FarmBis state/territory and national workshops, and APEN state/territory forums and national conferences.

R3: Develop communities of practice to provide opportunities for support and shared learning about brokerage and its potential for rural industry

While the guidebook is a useful starting point, much brokerage is learnt on-the-job, as the result of issues that require the development of a response relevant to the broking context. It is recommended that practitioners need a support framework, comprising others involved in brokerage, to enhance their learning. Brokers should be encouraged to form communities of practice. APEN is in a key position to support such communities of practice through the chat group facilities already available on their website. Other groups, such as the Australian Facilitators Network, could also support such activities. The existence of communities of practice should be publicised by these groups, and also by CVCB, RIRDC, FarmBis, and state and territory departments of primary industry.

R4: Add training brokerage to the curriculum of extension courses

Brokerage is still a relatively new concept in Australian rural training and NRM sectors. In addition to facilitating brokerage through targeted workshops and the use of the guidebook prepared for the current project, it is strongly recommended that a broking component needs to be included in all extension courses, and in courses that prepare people to work in extension, such as Agricultural Science degrees.

Promote awareness and encourage implementation of good practice broking principles

While many individuals and groups are undertaking some form of brokerage, there is confusion about what brokers actually do, and whether broking is a discrete activity or something that is done 'off the side of the desk'. The current study clearly defines the

broking role, and contrasts it with other roles such as that of training provider. By identifying a set of good practice broking principles, brokers now have a framework for developing and evaluating their practice. These principles need to be widely disseminated, and brokers must be encouraged to implement them. Recommendations for achieving this are listed below.

R5: Each CVCB investor explores the results of this research specifically for their organisation, and develops implementation strategies for adopting the model of training brokerage into their standard business practices
CVCB investors have a responsibility to promote training brokerage as a key strategy in ensuring a responsive training market. Specifically, they are in a position to provide strong leadership through example, by adopting and modelling good practice training brokerage in their day-to-day operations.

R6: Refer to good practice principles and incorporate them into everyday practice
The good practice broking principles identified in the guidebook underpin effective brokerage. Training providers should be encouraged to incorporate good practice principles in their training, while they and others involved in brokerage must ensure their activity is grounded in good practice broking principles. It is recommended that those organisations identified in Recommendation 1 (CVCB, RIRDC, RTOs, FarmBis, state and territory departments of primary industry) should have broad responsibility for promoting awareness of the principles and encouraging their implementation.

R7: Actively seek out brokers and develop networks with them
If we are to increase the responsiveness of the rural training market, it is imperative that all players actively seek opportunities for information sharing and collaboration, in order to better identify needs and meet them. Primary producers should be encouraged by farmer organisations and industry bodies to use brokers, so as to better match their needs to relevant training. In addition, training providers have a responsibility to actively seek out training brokers and to create opportunities for networking, in order to enhance their own practice and better meet the needs of their clients.

R8: FarmBis should encourage broking along with good practice
The FarmBis program does much to create conditions that support broking, such as providing incentives to develop programs and encouraging the development of clients and an understanding of needs. Because of their knowledge and networks, FarmBis networkers are in a prime position to raise awareness and encourage implementation of good practice broking principles, as part of their broader role of fostering good practice in the development of training for the rural sector. They should use their position to further encourage and facilitate partnership approaches to the identification of training needs and development of training solutions.

R9: Conduct more research into the role of private consultants and public/private training providers as brokers
The current research has identified a set of good practice broking principles, and a three-stage broking process, that need to be disseminated as widely as possible amongst practitioners. However, there is also a need for further knowledge about the principles, process and benefits of brokerage, and for this information to be readily available to practitioners, as well as policymakers and industry bodies. In particular,

there is evidence that consultants and training providers play a key broking role in Australian rural industry, although in some cases these roles are not adequately recognised and supported by policymakers. It is recommended that further research be undertaken into the role of agribusiness in general, and consultants and training providers in particular, in broking training within Australian rural industry. This research should be commissioned by RIRDC and the CVCB, as well as by industry-based research and development organisations.

Resourcing the implementation of good practice brokerage

Findings from the study indicate that we must invest in brokerage. Investment includes, but is not limited to, financial resources. Investment is about valuing brokerage and recognising it as a key part of being effective as an industry or regional body.

R10: Policymakers and industry bodies to act upon the principles for fostering brokerage identified in this report

The three broad principles for fostering brokerage relate to the provision of incentives, supports and resources for brokers. In short, there is a clear need for investment in brokerage. It is recommended that this report be disseminated to policymakers and industry bodies, and that the principles fostering brokerage be highlighted for their attention. Policymakers and industry bodies should be aware of the principles, and should actively respond to them as they engage in policy development and review.

R11: Those who fund training need to make adequate provision for implementation of good practice principles

Dissemination of good practice broking principles to practitioners and other stakeholders will not facilitate effective brokerage, if there is inadequate provision of resources to support their implementation. Funding bodies must be made aware that their support for good practice brokerage needs to be underpinned by the provision and continuity of adequate and realistic resourcing. Effective brokerage will increase the value of investment in training.

R12: Initiate, trial and implement broking models to create sustainable systems for facilitating training post-FarmBis

There is an urgent need to initiate, trial and implement broking models within the rural industry and NRM sectors, in order to ensure sustainability in terms of training facilitation. Given that the current round of FarmBis funding is due to cease in 2008, policymakers and industry bodies should give this issue high priority, to ensure continued responsiveness of the training market post-FarmBis.

R13: Develop mechanisms for fostering communication and coordination amongst training brokers

(a) *Institutional investors to support and facilitate coordination amongst training brokers via a website, forums to promote information exchange, and networking meetings*

There is a clear need for a national approach to coordinating training brokerage across industries, sectors and regions, and the responsibility for this lies with institutional investors.

(b) *APEN to form a broking subcommittee*

It is recommended that APEN forms a broking subcommittee, responsible for providing advice to policymakers and industry bodies regarding the development of strategies to better integrate funding, research and development, and the training response. The subcommittee would also have overarching responsibility for developing broking skills and providing support for brokers, and for promoting awareness and encouraging implementation of good practice broking principles amongst its membership.

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